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LANGUAGE OF CHEMISTRY

SUBJECT-CHEMISTRY

CHAPTER NO- 5

Chemical Reactions , Conditions necessary for Chemical Reactions

PERIOD-1

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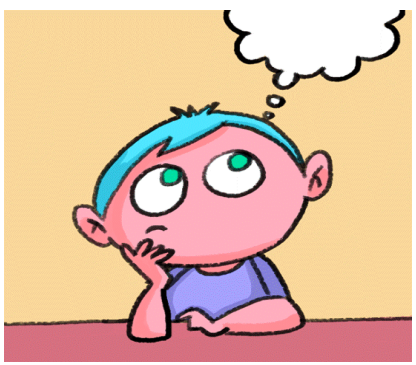
LEARNING OBJECTIVE

Students will be able to

- Understand the meaning of chemical Reaction
- Familiarize with the conditions required for the chemical reactions
- Sensitize the concept with examples.



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CHEMICAL REACTIONS

- Any chemical change in matter which involves its transformation into one or more new substances is called a chemical reaction.
- A chemical reaction also involves transfer of energy.
- A Chemical Reaction is a process to show a chemical change.
- A Chemical Reaction is represented by a chemical equation

EXAMPLE OF A CHEMICAL REACTION

- For example, the reaction between Hydrogen and oxygen: -
  - $2H_2 + O_2 \longrightarrow 2H_2O$
- In the above reaction, hydrogen and oxygen are the elements that undergo chemical change to form a new substances water, a compound which is completely different from hydrogen and oxygen.
- It has been observed that the total mass of the reactants is equal to the total mass of the products.
- This is possible when the total number of atoms of each kind remains same before and after the chemical reactions.
- This is supported by the “LAW OF CONSERVATION OF MATTER” which states that “Matter can neither be created nor destroyed. It can only be transformed from one form to another

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CONDITIONS NECESSARY FOR THE CHEMICAL REACTIONS

CLOSE CONTACT

- The reactants must be mixed for a chemical reaction to take place.
- For example, sodium reacts violently when in close contact with water to produce sodium hydroxide and hydrogen gas.
- Sodium + water----------→ Sodium hydroxide + hydrogen

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CONDITIONS NECESSARY FOR THE CHEMICAL REACTIONS

SOLUTION FORM

- Some substances reacts only when they are in the form of solution.
- For example, when sodium chloride is added to silver nitrate in the aqueous form of in the solution form, they react to produce a white precipitate of silver nitrate
- Silver nitrate + Sodium chloride——————→ Silver chloride + Sodium nitrate
  White ppt.

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CONDITIONS NECESSARY FOR THE CHEMICAL REACTIONS

HEAT

- Some chemical reactions take place in the presence of heat.
- For example, Iron reacts with sulphur in the presence of heat to produce Iron Sulphide.
- Iron + Sulphur ——————→ Iron Sulphide

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CONDITIONS NECESSARY FOR THE CHEMICAL REACTIONS

LIGHT

- Some Chemical Reaction takes place in the presence of light.
- For example, Photosynthesis.
- Carbon Dioxide + Water——Light/Chlorophyll————→Glucose + Oxygen

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CONDITIONS NECESSARY FOR THE CHEMICAL REACTIONS

CATALYST

- A Catalyst is a substance that changes the rate of chemical reactions without undergoing any change by itself.
- Some reactions need a catalyst to take place.
- For example, Potassium chloride can be decomposed in the presence of Manganese dioxide as a catalyst to produce potassium chloride and oxygen.
- Potassium Chlorate——MnO_2————→ Potassium Chloride + Oxygen

(Heat)

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HOME ASSIGNMENT

- Exercise – Q1 and Q2
- What do you mean by a Catalyst? Give an example.
- Give an example of a chemical reaction that takes place in the presence of : -

a) Light

b) Heat

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WATCH A VIDEO

- https://youtu.be/4RQrJe-3BaQ

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THANKING YOU

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