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LANGUAGE OF CHEMISTRY

SUBJECT-CHEMISTRY

CHAPTER NO- 5

Characteristics of a Chemical Reaction

PERIOD-2

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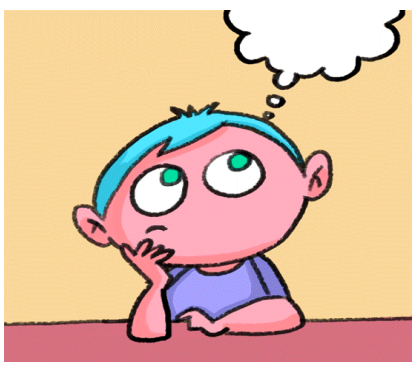
LEARNING OBJECTIVE

Students will be able to

- Familiarize with the characteristics of a chemical reaction.
- Sensitize the concept with examples.



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CHARACTERISTICS OF A CHEMICAL REACTION

- CHANGE IN THE COLOUR
- EVOLUTION OF A GAS
- FORMATION OF A PRECIPITATE
- CHANGE OF STATE
- CHANGE OF SMELL
- HEAT IS RELEASED OR EVOLVED

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CHANGE IN THE COLOUR

- Some Chemical Reactions are accompanied by change in colour.
- For Example, Rust which is brown in colour whereas iron is grey in colour.
- The colour of copper sulphate changes from blue to green when it is exposed to iron.
- The reaction between lead nitrate and potassium iodide changes the colour from colourless to yellow

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EVOLUTION OF A GAS

- A Chemical Reaction often involves an evolution of a gas.
- For example, the reaction between Zinc and Hydrochloric acid results in the evolution of Hydrogen gas.
- $Zn + 2HCl \longrightarrow ZnCl_2 + H_2\ (g)$
- When lead nitrate is heated in a hard glass test tube, results in the evolution of Nitrogen dioxide gas.
- $2Pb(NO_3)_2 \xrightarrow{Heat} 2PbO + 4NO_2(g) + O_2\ (g)$
- The reaction between Zinc and Sulphuric acid result in the formation of Hydrogen gas
- $Zn + H_2SO_4 \longrightarrow ZnSO_4 + H_2(g)$

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FORMATION OF A PRECIPITATE

- A Chemical Reaction often involves the formation of a precipitate.
- A Precipitate is an insoluble solid that is obtained from the solution.
- For example, when lead nitrate is heated in a hard glass test tube, results in the production of potassium nitrate along with a yellow precipitate of Lead Iodide.
- $Pb(NO_3)_2 + 2KI \longrightarrow PbI_2 + 2KNO_3$

  Yellow ppt.

- For example, the reaction between Barium Chloride and sodium sulphate results in the formation of white ppt. of Barium Sulphate.
- $BaCl_2 + Na_2SO_4 \longrightarrow BaSO_4 + 2NaCl$

  White ppt.

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CHANGE OF STATE

- A chemical reaction often involves a change in the state of matter.
- For example, Solid wax (in the form of candle) burns to form water vapour and carbon dioxide which are gaseous.
- Petrol, which is a liquid, burns to form water vapour and carbon dioxide which are gaseous

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CHANGE OF SMELL

- During some chemical reactions, sometime a strong smell is experienced.
- For example, when solid ammonium chloride is heated with sodium hydroxide, a gas ammonia is evolved which has a strong pungent smell.
- Ammonium chloride + Sodium hydroxide ——————→ sodium Chloride + Water + ammonia
  (Pungent smell gas)

- The reaction between Iron and Hydrochloric acid in the dilute form, results in the production of hydrogen sulphide (H_2S) which has a rotten egg smell
- Iron + dil. Hydrochloric Acid ——————→ Iron Chloride + Hydrogen sulphide
  (rotten egg smell)

HEAT IS RELEASED OR EVOLVED

- During many chemical reactions heat is evolved indicating the formation of products.
- For example, the reaction between Calcium Oxide and water produces heat.
- Calcium Oxide + Water——————→ Calcium Hydroxide + Heat
- For Example, the reaction between sodium hydroxide and dil. Hydrochloric acid produces heat along with sodium chloride and water.
- Sodium hydroxide + dil. Hydrochloric acid————→ Sodium chloride + water + Heat

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HOME ASSIGNMENT

- Exercise-Q3 & Q4
- Name and write the formula of the gas that a pungent smell.
- Which gas has a rotten egg smell? How is it prepared? Support your answer with chemical equation.

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WATCH A VIDEO

- https://youtu.be/8w9yRxBZzSo

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THANKING YOU

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