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ATOMS AND MOLECULES

CHEMISTRY

CHAPTER-3

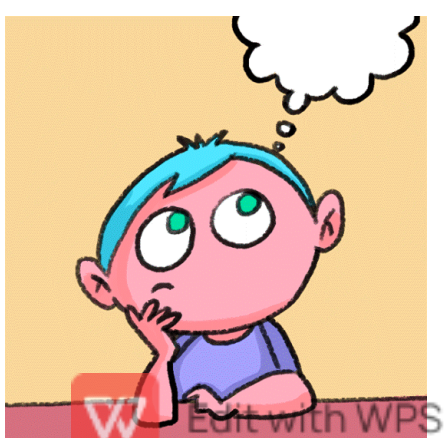
LAW OF CONSERVATION OF MASS

PERIOD-1

LEARNING OBJECTIVE

Students will be able to

- Know about the various laws of chemical combination.
- Get aware of the Law of Conservation of Mass.
- They would be able to prove the law experimentally.



CHEMICAL REACTIONS

- Chemical Reactions

- In a chemical reaction, two or more molecules interact to produce new compounds and are called reactants, whereas the newly formed compounds are called products.
- In a chemical reaction, a chemical change must occur, which is generally observed with physical changes like precipitation, heat production, colour change, etc.

LAWS OF CHEMICAL COMBINATION

A number of Laws are proposed by the experimental studies.
The laws of chemical combination are: -

- The law of conservation of mass.
- The law of constant proportion.
- The law of multiple proportion.

LAW OF CONSERVATION OF MASS

- According to the law of conservation of mass, matter can neither be created nor destroyed in a chemical reaction. It remains conserved.
- Mass of reactants will be equal to the mass of products.
- It was proposed by Antoine Lavoisier in the year 1774.
- This law can be verified experimentally by the reaction between Barium Chloride and Sodium Sulphate.

APPLICATION OF THE LAW OF CONSERVATION OF MASS

- In a chemical reaction if , 4g OF Sodium Sulphate reacts with 10 g OF Barium Chloride, results in the formation of 11.5g of Barium sulphate along with 2.5 g of Sodium chloride
- The above reaction satisfies the law of conservation of mass.
- The chemical reaction can be written as follows :-
- $Na_2SO_4 + BaCl_2 \longrightarrow BaSO_4 + 2NaCl$
  - 4g 10g 11.5g 2.5g
  - Mass of Reactant- 4g + 10g=14g
  - Mass of Product-11.5g + 2.5g =14g
  - Hence , Mass of Reactant = Mass of Product

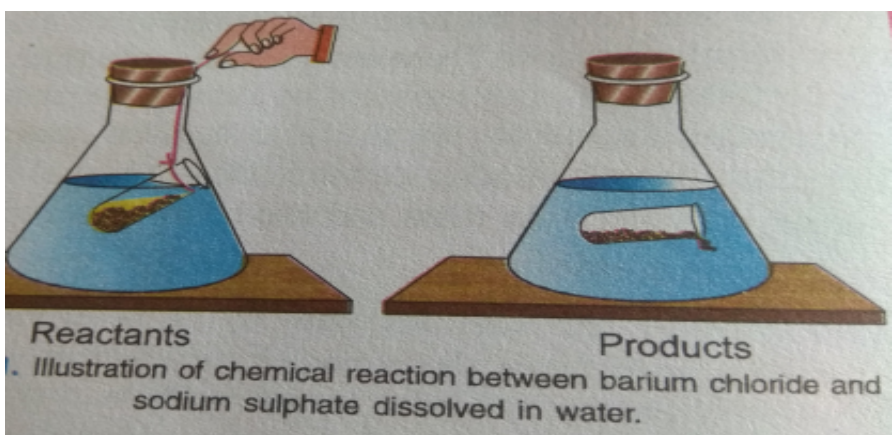


Illustration of chemical reaction between barium chloride and sodium sulphate dissolved in water.

HOME ASIIGNMENT

- Exercise-1 (Q1, Q2) & Exercise-II (Q1, Q2)

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