What are Synthesis Reactions?

Worksheet

A synthesis reaction combines two or more reactants into one product: A + B AB. Common examples include burning hydrogen (2H + O 2HO) and reacting sodium with chlorine (2Na + Cl 2NaCl).

Questions

1. Which equation is a synthesis reaction?

A) 2HO 2H + O
B) 2Na + Cl 2NaCl
C) HCl + NaOH NaCl + HO
D) CHO 2CHO + 2CO

2. What is the general form of synthesis?

A) A B + C
B) A + B AB
C) AB + CD AD + CB
D) A + BC AC + B

3. Is 2H + O 2HO synthesis?

A) No, it is decomposition
B) Yes, two reactants form one product
C) No, it is single displacement
D) No, it is double displacement

4. When iron (Fe) burns in oxygen, it forms FeO. This is synthesis because

A) one reactant breaks down
B) two reactants combine into one product
C) atoms switch places
D) ions exchange partners

5. Sodium (Na) reacts with chlorine gas (Cl) to form sodium chloride. Write and balance the equation.

6. Hydrogen gas (H) burns in oxygen (O) to form water (HO). Balance this synthesis reaction.

7. Carbon (C) burns completely in oxygen to form carbon dioxide. Write the balanced synthesis equation.

8. Define: What is a synthesis reaction?

9. Define: Is burning a synthesis reaction?

10. Define: Give an example of synthesis.

Answer Key

1. B) 2Na + Cl 2NaCl - 2Na + Cl 2NaCl combines two reactants into one product.

2. B) A + B AB - Synthesis: A + B AB (two or more combine into one).

3. B) Yes, two reactants form one product - Two substances (hydrogen and oxygen) combine to form one product (water).

4. B) two reactants combine into one product - Fe and O (two reactants) combine to form FeO (one product).

5. Unbalanced: Na + Cl NaCl Balance Cl: need 2 NaCl on right Balance Na: need 2 Na on left Balanced: 2Na + Cl 2NaCl

6. Unbalanced: H + O HO Balance O: need 2 HO on right Balance H: need 2 H on left Balanced: 2H + O 2HO

7. Unbalanced: C + O CO Carbon: 1 on left, 1 on right Oxygen: 2 on left, 2 on right Balanced: C + O CO

8. A reaction where two or more reactants combine to form a single product: A + B AB.

9. Yes. For example, hydrogen burns in oxygen to form water: 2H + O 2HO.

10. Sodium reacting with chlorine: 2Na + Cl 2NaCl (sodium chloride).