What are Double Displacement Reactions?

Worksheet

A double displacement reaction exchanges ions between two compounds: AB + CD AD + CB. Example: HCl + NaOH NaCl + HO (hydrogen and sodium ions swap partners, forming salt and water).

Questions

1. Which equation shows double displacement?

A) 2H + O 2HO
B) HCl + NaOH NaCl + HO
C) Fe + CuSO FeSO + Cu
D) CaCO CaO + CO

2. In AB + CD AD + CB, what happens?

A) A combines with B
B) Ions exchange partners
C) One element replaces another
D) One compound breaks apart

3. What often forms in double displacement?

A) Only gases
B) A precipitate, gas, or water
C) Only heat
D) No products

4. In AgNO + NaCl AgCl + NaNO, the precipitate is

A) NaNO
B) AgNO
C) AgCl
D) NaCl

5. Hydrochloric acid (HCl) reacts with sodium hydroxide (NaOH). Ions exchange to form salt and water. Write and balance.

6. Sodium carbonate (NaCO) reacts with calcium chloride (CaCl). They form calcium carbonate precipitate and NaCl. Balance.

7. Silver nitrate (AgNO) reacts with sodium chloride (NaCl). They form AgCl precipitate. Write and balance.

8. Define: What is a double displacement reaction?

9. Define: What often forms in double displacement?

10. Define: Is HCl + NaOH NaCl + HO double displacement?

Answer Key

1. B) HCl + NaOH NaCl + HO - HCl + NaOH NaCl + HO: H and Na ions exchange partners.

2. B) Ions exchange partners - Ions from the two compounds trade partners: A with D, B with C.

3. B) A precipitate, gas, or water - Double displacement often produces an insoluble precipitate, gas, or weakly molecular compound like water.

4. C) AgCl - AgCl (silver chloride) is insoluble in water and forms a white precipitate (indicates this).

5. Unbalanced: HCl + NaOH NaCl + HO H: 1 on left, 2 on right (unbalanced) Cl: 1 on each side Na: 1 on each side O: 1 on each side Balance: equation already balanced as written (1:1:1:1) Balanced: HCl + NaOH NaCl + HO

6. Unbalanced: NaCO + CaCl CaCO + NaCl Na: 2 on left, 1 on right (unbalanced) Ca: 1 on each side C: 1 on each side Cl: 2 on left, 1 on right (unbalanced) Balance: need 2 NaCl on right Balanced: NaCO + CaCl CaCO + 2NaCl

7. Unbalanced: AgNO + NaCl AgCl + NaNO Ag: 1 on each side N: 1 on each side Cl: 1 on each side Na: 1 on each side O: 3 on each side Balanced: AgNO + NaCl AgCl + NaNO

8. Ions from two compounds exchange places: AB + CD AD + CB. Two new compounds form.

9. A gas, a precipitate (solid), or water - one of the products is often insoluble or weakly molecular.

10. Yes. H and Na ions swap partners. This is an acid-base neutralization (a type of double displacement).