



Science 1206

Reaction Types



Types of Chemical Reactions

- There are 5 types of reactions that you need to recognize:
 - Simple Composition
 - Simple Decomposition
 - Single Replacement
 - Double Replacement
 - Hydrocarbon Combustion

1. Formation (Simple Composition)

2 elements or compounds react to form 1 new compound

General: $A + B \rightarrow AB$

Word: element + element \rightarrow compound

Example: $2 \text{Mg}_{(s)} + \text{O}_{2(g)} \rightarrow 2 \text{MgO}$

Examples: $A + B \rightarrow AB$

- magnesium reacts with oxygen from the air



- hydrogen and oxygen react to produce water

2. Simple Decomposition

1 compound breaks down into 2 elements or compounds

General: $AB \rightarrow A + B$

Word: compound \rightarrow element + element OR
compound \rightarrow compound + compound

Example: $2 \text{Cu}_2\text{O}_{(s)} \rightarrow 4 \text{Cu}_{(s)} + \text{O}_{2(g)}$



- 
- mercury(II)oxide decomposes



- water is broken down into its elements

3. Single Replacement

- A element/ion switches its place in the reaction

General: $A + BC \rightarrow B + AC$

Word: element + compound \rightarrow new element + new compound

Example: $Zn_{(s)} + Pb(NO_3)_{2(aq)} \rightarrow Pb_{(s)} + Zn(NO_3)_{2(aq)}$



- Barium and zinc chloride react



- chlorine reacts with sodium bromide solution

4. Double Replacement

- Two compounds react and switch ions
- you see a double switch

General: $AB + CD \rightarrow AD + CB$

Word: compound + compound \rightarrow compound + compound

Example: $BaCl_{2(aq)} + 2Ag(NO_{3(aq)}) \rightarrow Ba(NO_{3(aq)})_2 + 2AgCl_{(s)}$

- 
- solutions of barium chloride and potassium carbonate react

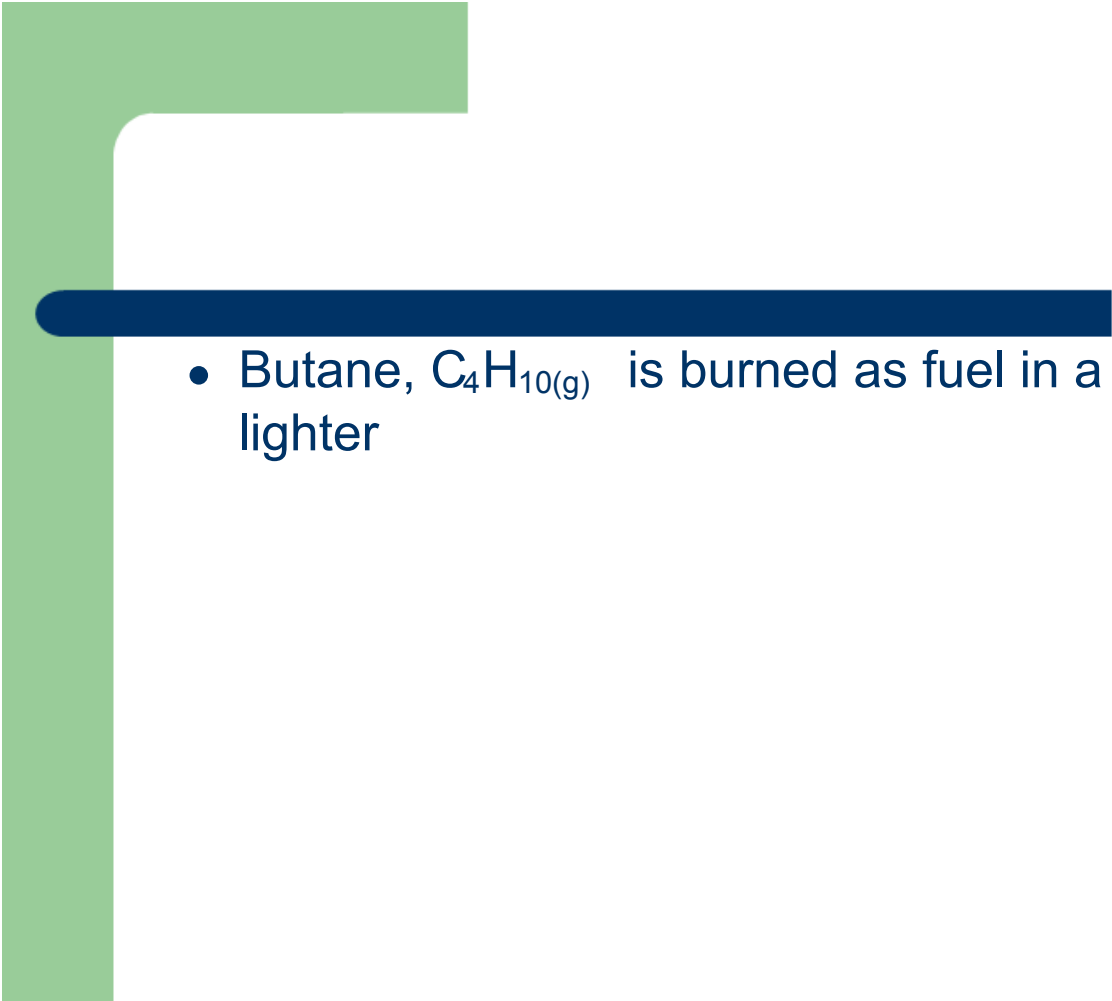
5. Hydrocarbon Combustion

- A hydrocarbon (C_xH_y) reacts with oxygen to produce CO_2 and H_2O
- Burning!

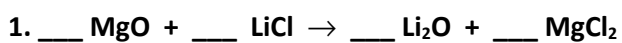


Word: hydrocarbon + oxygen \rightarrow carbon dioxide + water

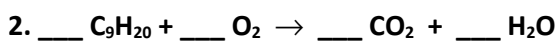


- 
- Butane, $C_4H_{10(g)}$ is burned as fuel in a lighter

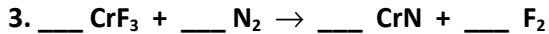
Queson....Balance and label the following reacons.



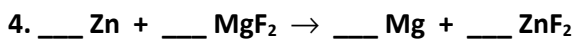
reacon type:



reacon type:



reacon type:



reacon type:



reacon type: