

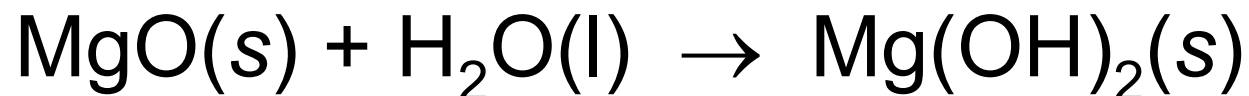
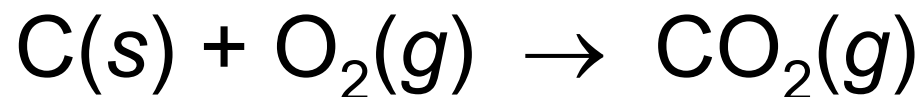
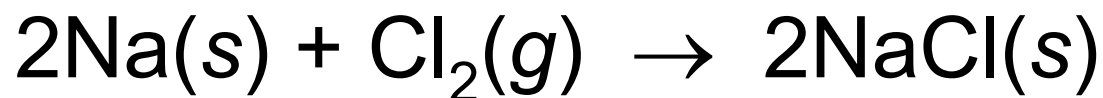
More Types of Chemical Reactions



- Combination
- Decomposition
- Combustion
- Single Displacement

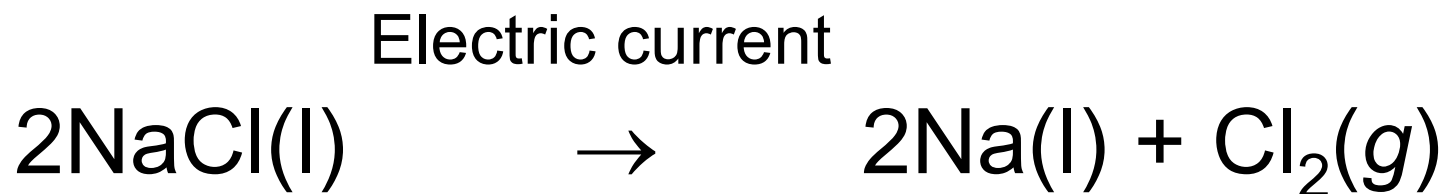
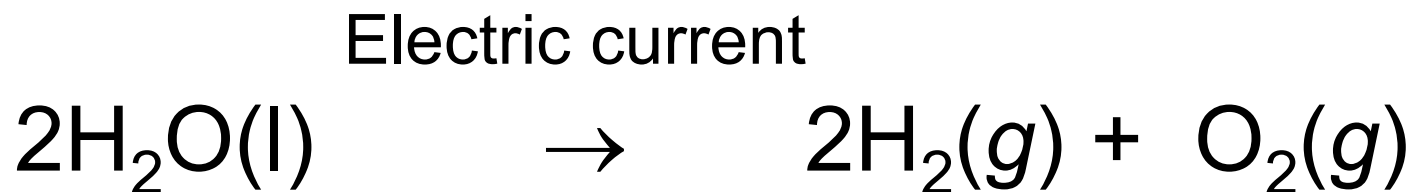
Combination Reactions

- In ***combination reactions***, two or more elements or compounds combine to form one compound.

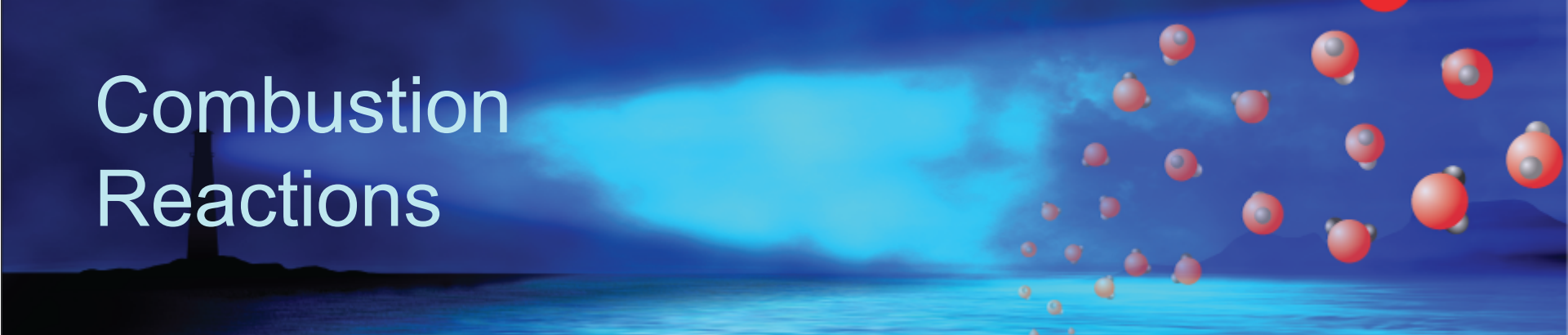


Decomposition Reactions

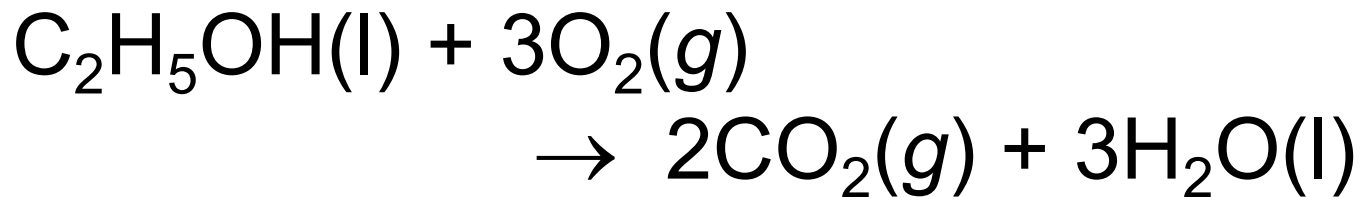
- In ***decomposition reactions***, one compound is converted into two or more simpler substances.



Combustion Reactions

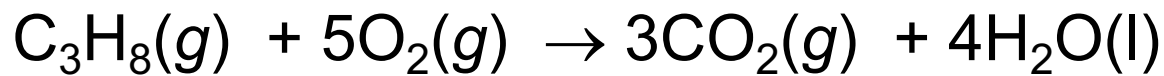


- A ***combustion reaction*** is a redox reaction in which the reaction is very rapid and is accompanied by heat and usually light. The combustion reactions that you will be expected to recognize have oxygen, O₂, as one of the reactants.



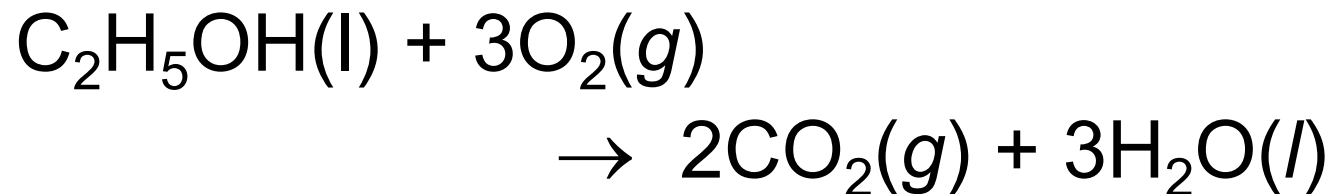
Combustion Products (1)

- When any substance that contains carbon is combusted (or burned) completely, the carbon forms carbon dioxide.
- When a substance that contains hydrogen is burned completely, the hydrogen forms water.



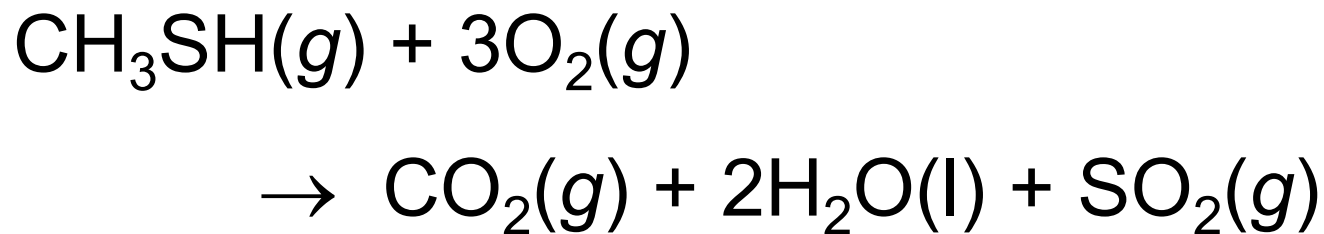
Combustion Products (2)

- The complete combustion of a substance, like ethanol, C_2H_5OH , that contains carbon, hydrogen, and oxygen also yields carbon dioxide and water.



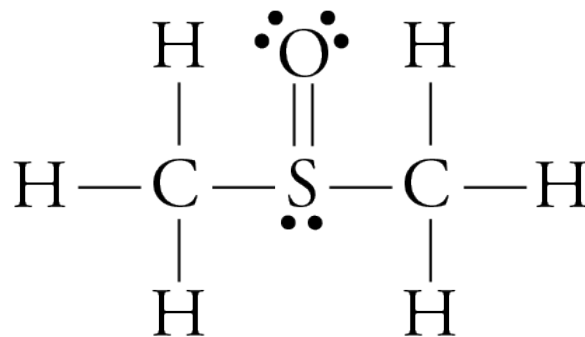
Combustion Products (3)

- When any substance that contains sulfur burns completely, the sulfur forms sulfur dioxide gas.



Example

- Write the complete balanced equation for the complete combustion of liquid dimethyl sulfoxide, DMSO, which is a solvent that penetrates the skin without doing damage. It is used as a topical anesthetic and to aid the transfer of pharmaceuticals, such as antifungal compounds, through the skin. The condensed formula CH_3SOCH_3 can be used to describe DMSO.

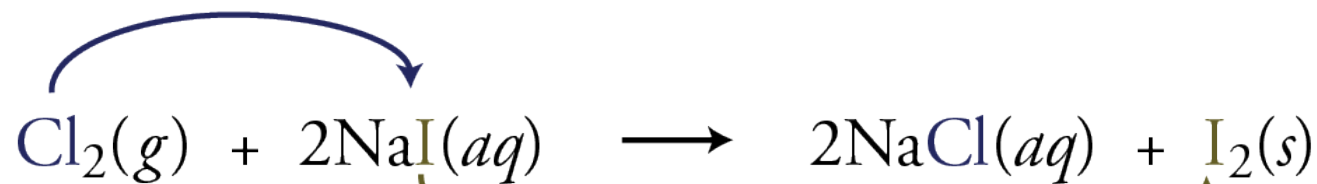
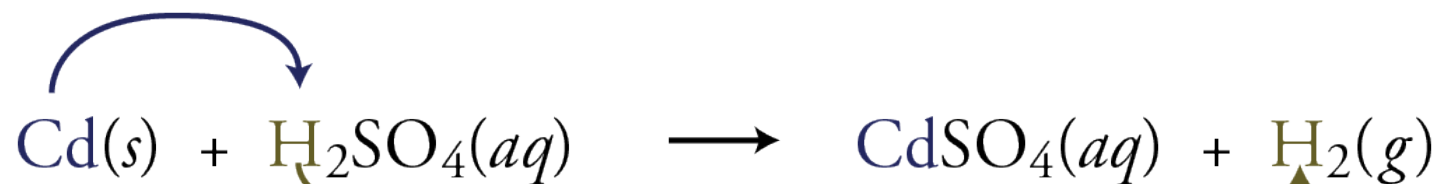
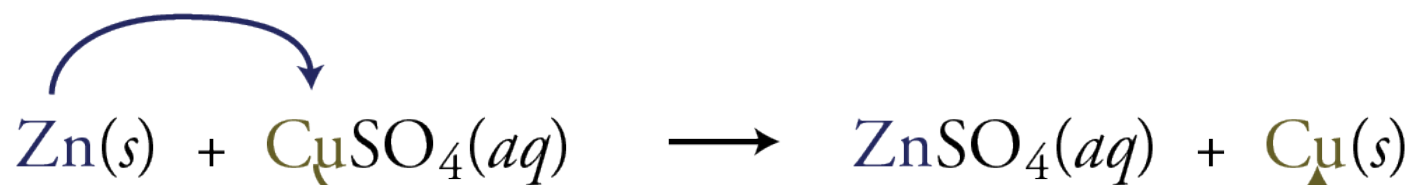


Example

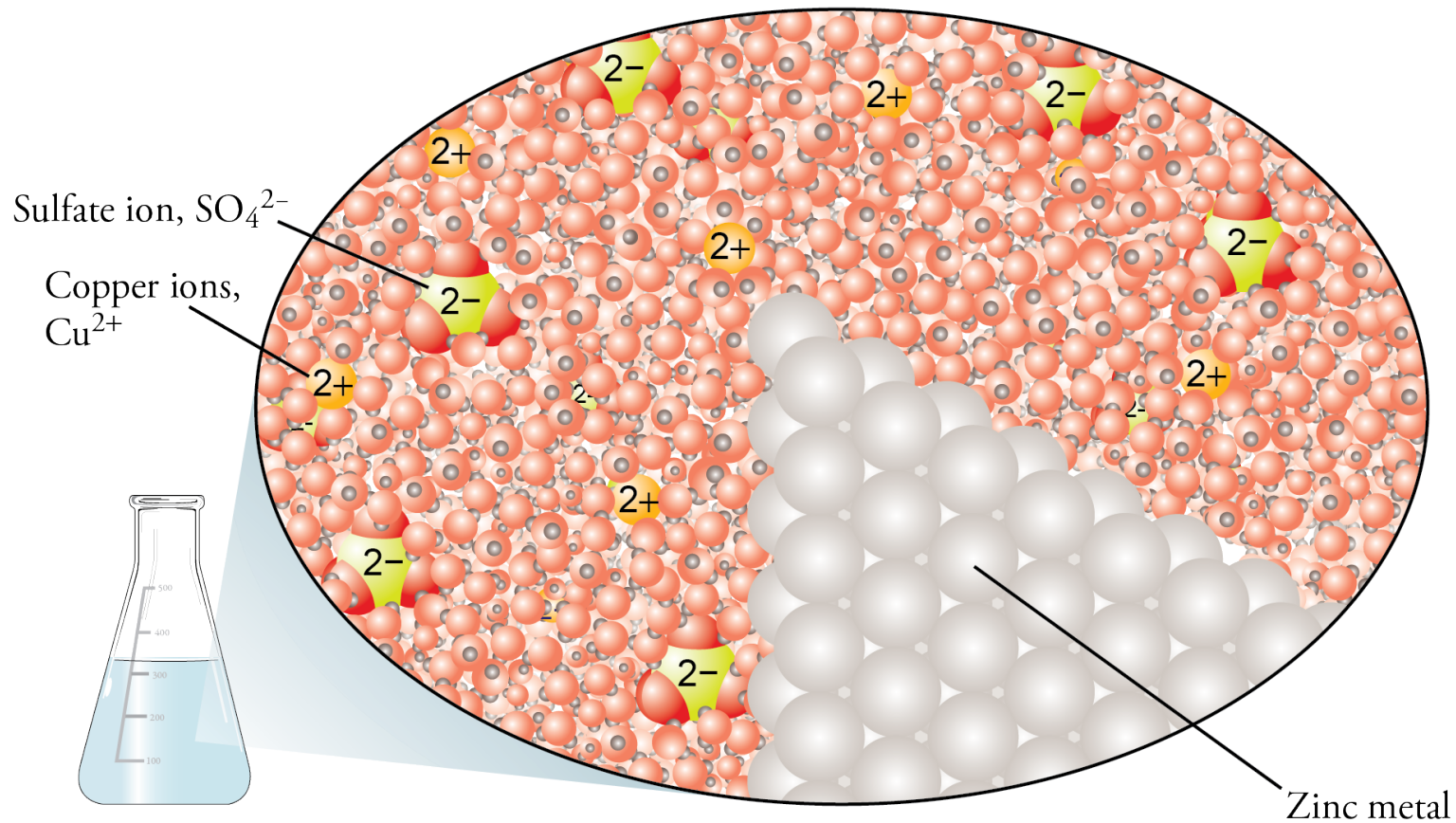
- $\text{CH}_3\text{SOCH}_3(\text{l}) + \text{O}_2(\text{g}) \rightarrow$
- $\text{CH}_3\text{SOCH}_3(\text{l}) + \text{O}_2(\text{g})$
 $\rightarrow \text{CO}_2(\text{g}) + \text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g})$
- $\text{CH}_3\text{SOCH}_3(\text{l}) + 4\text{O}_2(\text{g})$
 $\rightarrow 2\text{CO}_2(\text{g}) + 3\text{H}_2\text{O}(\text{l}) + \text{SO}_2(\text{g})$

Single Displacement

Pure element displaces element in compound



Single Displacement Reaction



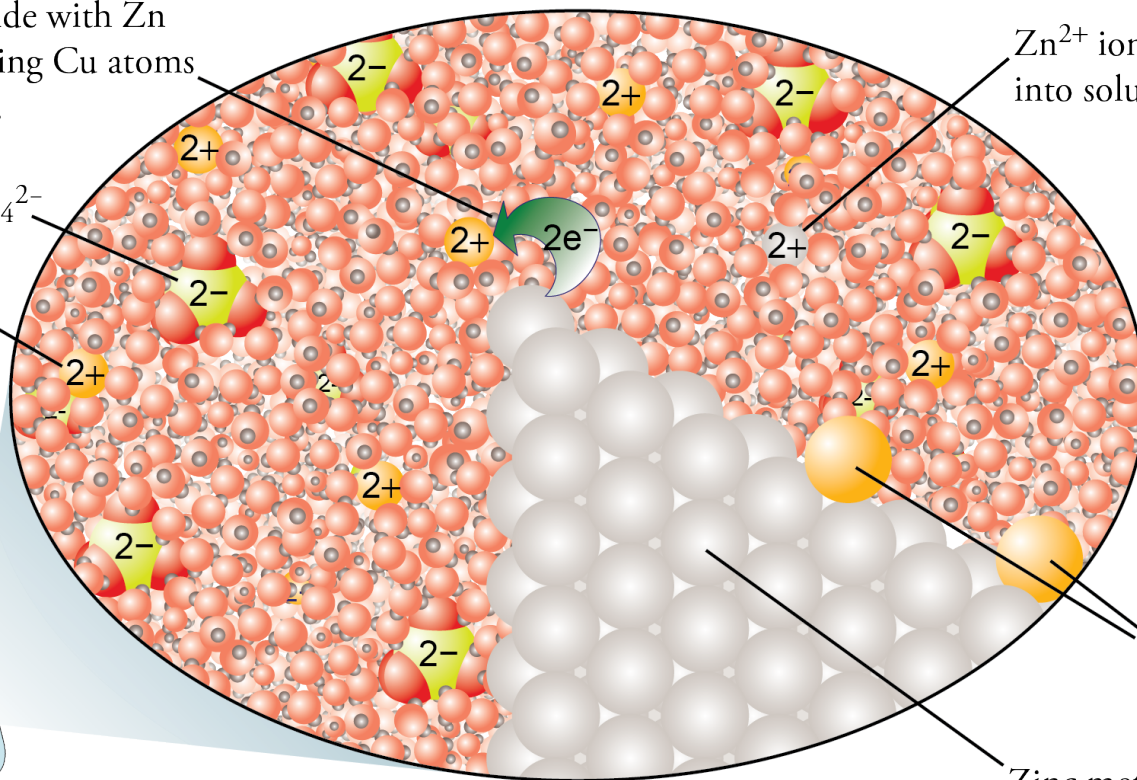
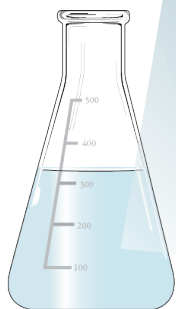
Single Displacement Reaction Example

Cu^{2+} ions collide with Zn atoms, producing Cu atoms and Zn^{2+} ions.

Zn^{2+} ions move into solution.

Sulfate ion, SO_4^{2-}

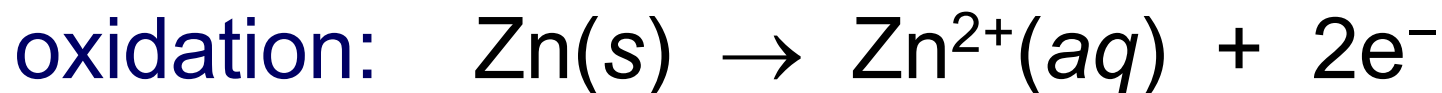
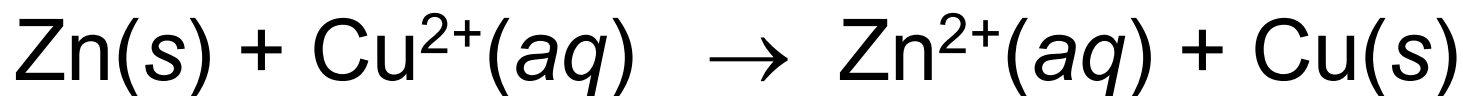
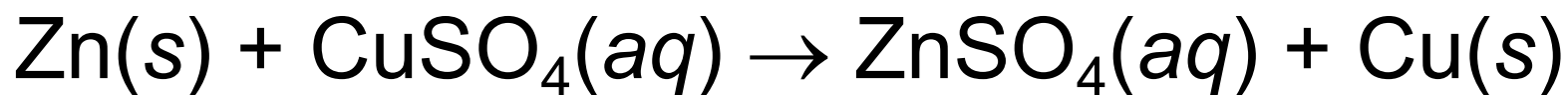
Copper ions, Cu^{2+}



Cu atoms collect on the solid.

Zinc metal

Single Displacement Reaction



https://preparatorychemistry.com/Zn_CuSO4_Canvas.html