

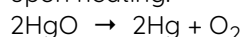


Question-11

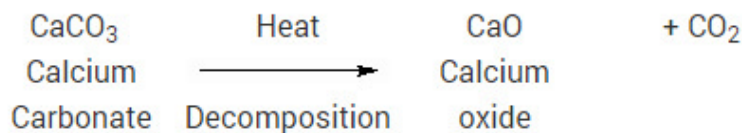
Why are decomposition reactions called the opposite of combination reactions? Write equations for decomposition reactions.

Solution:

Essentially, decomposition reactions are the opposite of combination reactions. A compound decomposes (i.e., "splits-up") into two or more compounds and/or elements. For example, mercury (II) oxide will, decompose into mercury metal and oxygen, upon heating:



Since heat had to be added to make this reaction occur, it is an endothermic reaction. Most decomposition reactions are endothermic. Another example of decomposition reaction is the heating of calcium carbonate (sea shells, chalk):



Question-12

Write one equation each for decomposition reactions in which energy is supplied in the form of heat, light or electricity?

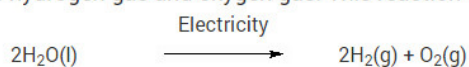
Solution:

When calcium carbonate is heated, it decomposes to give calcium oxide and carbon dioxide:

When calcium carbonate is heated, it decomposes to give calcium oxide and carbon dioxide:



When electric current is passed through acidified water, it decomposes to give hydrogen gas and oxygen gas. This reaction can be represented as:



When silver chloride is exposed to light, it decomposes to form silver metal and chlorine gas:



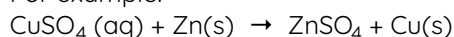
Question-13

What is the difference between displacement and double displacement reactions? Write relevant equations for the above?

Solution:

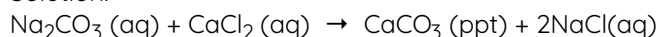
The difference between the displacement and double displacement reactions is that in a displacement reaction one element displaces another by virtue of it being more reactive whereas in a double displacement two anions and two cations switch places between two compounds respectively.

For example:



Blue copper sulphate solution reacting with solid zinc will give rise to colourless zinc sulphate solution and solid copper. Thus Zn displaces Cu in the salt form. Zn is more reactive than Cu.

An example of double displacement reaction is the reaction between sodium carbonate and calcium chloride, both in aqueous solution:



Question-14

In the refining of silver, the recovery of silver from silver nitrate solution involves displacement by copper metal. Write down the reaction involved.

Solution:



Question-15

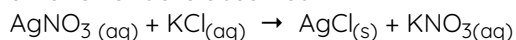
What do you mean by a precipitation reaction? Explain by giving examples:

Solution:

A precipitation reaction is a reaction in which soluble ions in separate solutions are mixed together to form an insoluble compound that settles out of solution as a solid. This insoluble compound is called a precipitate.

An example of a precipitation reaction:

Aqueous silver nitrate (AgNO_3) when added to a solution containing potassium chloride (KCl) precipitates a white solid, and silver chloride is observed.



The silver chloride (AgCl) has formed a solid, which is observed as a precipitate.

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