

CHEMISTRY STUDY MATERIALS FOR CLASS 10

(NCERT Based notes of Chapter -01)

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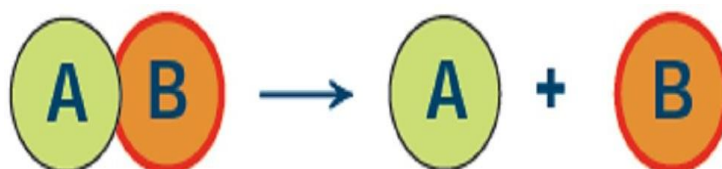
DATE:- 14/04/2021

CHEMICAL REACTIONS AND EQUATIONS

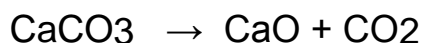
DECOMPOSITION REACTION

Reactions in which one compound decomposes in two or more compounds or element are known as DECOMPOSITION REACTION. Decomposition reaction is just opposite of combination reaction.

A general decomposition reaction can be represented as follows:

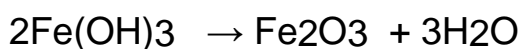


Example: When calcium carbonate is heated, it decomposes into calcium oxide and carbon dioxide



Calcium carbonate \rightarrow Calcium oxide + Carbon dioxide

When ferric hydroxide is heated, it decomposes into ferric oxide and water



Ferric hydroxide \rightarrow Ferric oxide + Water

When lead nitrate is heated, it decomposes into lead oxide, nitrogen dioxide and oxygen.



Lead nitrate \longrightarrow Lead oxide + Nitrogen oxide + Oxygen

In above examples, compound is decomposed because of heating,

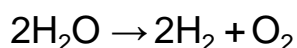
So, these reactions are called **THERMAL DECOMPOSITION REACTION**.

ELECTROLYTIC DECOMPOSITION

Reactions in which compounds decompose into simpler compounds because of passing of electricity, are known as ELECTROLYTIC DECOMPOSITION.

This is also known as ELECTROLYSIS.

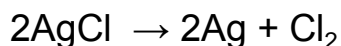
Example: When electricity is passed in water, it decomposes into hydrogen and oxygen.



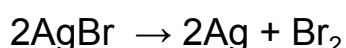
PHOTOLYSIS OR PHOTO DECOMPOSITION REACTION

Reactions in which a compound decomposes because of sunlight are known as PHOTOLYSIS or PHOTO DECOMPOSITION REACTION.

Example: When silver chloride is put in sunlight, it decomposes into silver metal and chlorine gas.



Similarly, when silver bromide is put under sunlight, it decomposes into silver metal and bromine gas.



Photographic paper has coat of silver chloride, which turns into grey when exposed to sunlight. It happens because silver chloride is colourless while silver is a grey metal.

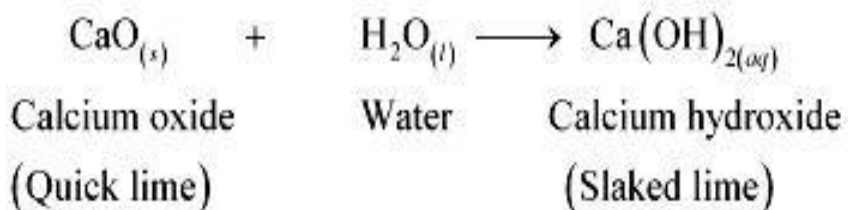
INTEXT QUESTIONS PAGE NO. 10

Question 1: A solution of a substance 'X' is used for white washing.

- (i) Name the substance 'X' and write its formula.**
- (ii) Write the reaction of the substance 'X' named in (i) above with water.**

Answer : (i) The substance 'X' is calcium oxide. Its chemical formula is CaO.

(ii) Calcium oxide reacts vigorously with water to form calcium hydroxide (slaked lime).



Question 2: Why is the amount of gas collected in one of the test tubes in Activity 1.7 double of the amount collected in the other? Name this gas.

Answer : Water (H₂O) contains two parts hydrogen and one part oxygen.

Therefore, the amount of hydrogen and oxygen produced during electrolysis of water is in a 2:1 ratio. During electrolysis, since

hydrogen goes to one test tube and oxygen goes to another, the amount of gas collected in one of the test tubes is double of the amount collected in the other.
