

Preparation of Gases

Exercise 2:

Solution 1(a):

When potassium permanganate is heated it decomposes to form potassium manganate, manganese dioxide and oxygen. Oxygen supports fire. So, when an incense stick is inserted in the test tube, it will relight and burn brightly.

Solution 1(b):

Blue litmus shows no colour change but red litmus paper turns blue when it is immersed in the solution of magnesium hydroxide. This indicates that magnesium hydroxide is basic in nature.

Exercise 3:

Solution 1(a):

Red litmus shows no colour change but blue litmus paper turns red when it is immersed in the solution of sulphurous acid. This indicates that sulphurous acid is acidic in nature.

Exercise 4:

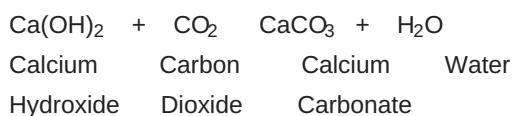
Solution 1(a):

Pieces or powder of marble (Calcium carbonate) react with hydrochloric acid to produce carbon dioxide gas which is used to extinguish fire. When an incense stick is inserted in the glass bottle, it goes off due to the presence of carbon dioxide gas.

Exercise 5:

Solution 1(a):

Decanted water turns milky. This happens because of reaction between decanted water and carbon dioxide of blown air. White insoluble solid, calcium carbonate (CaCO_3) is formed as a result of the reaction which makes the solution milky.



Exercise 9:

Solution 1(a):

When a magnesium strip or an iron nail reacts with hydrochloric acid it results in formation of magnesium chloride and hydrogen gas is released. When a lighted match stick is brought near the mouth of the test tube, hydrogen gas catches fire with a pop-up sound.

Exercise 12:

Solution 1.1:

True.

Solution 1.2:

False. Carbon dioxide gas is heavier than air.

Solution 1.3:

False. Carbon dioxide is heavier than air.

Solution 1.4:

False. Nitrogen gas decreases the reactivity of oxygen gas.

Solution 2.1:

1. Carbon dioxide is used for extinguishing fire.
2. It is used for preparation of washing soda.
3. It is also used for the preparation of cold drinks like soda water.
4. It is used in photosynthesis by vegetation.

Solution 2.2:

1. It is used to prepare chemicals like ammonia, nitric acid, urea etc.
2. It is used to prepare inert atmosphere.
3. It is used to decrease the reactivity of oxygen in the air.
4. It is used to create unnatural smoke in films and dramas.

Solution 3:

Group A	Group B
Oxygen gas	Support of combustion
Carbon dioxide gas	Extinguishing fire gas
Hydrogen gas	Combustible gas