

Activity 1.1

Brief Procedure:

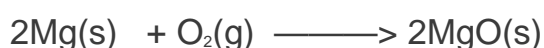
Activity 1.1 asks us to burn Magnesium ribbon in a china dish and see what happens.

Observation:

Magnesium ribbon burns spontaneously, and white ash deposits on the china dish.

Explanation:

Magnesium is a highly reactive metal. It reacts spontaneously with oxygen present in the atmosphere to form white ash of Magnesium oxide with the liberation of energy.



Caution:

Magnesium can burn spontaneously like a cracker. Keep it away from the body during the experiment

Activity 1.2.

Brief procedure: Activity 1.2 asks us to mix an aqueous solution of lead nitrate with potassium iodide to check what happens.

Observation: A yellow colour precipitate appears at the bottom.

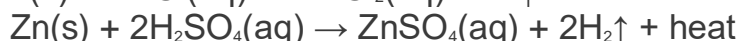
Explanation: Lead nitrate and potassium iodide; both are colourless. They react with each other to form a yellow precipitate of lead iodide. Lead iodide settles down at the bottom of the tube.

Activity 1.3

Objective: The question ask to put zinc granules in the beaker containing acid either hydrochloric acid or sulphuric acid and ask for what we observe.

Observation: Air Bubbles comes out from the granules, and Conical flask becomes warm.

Inference: Zinc granules react with hydrochloric acid or sulfuric acid and forms hydrogen gas.



Caution: Acids are corrosive and harmful for skin. Avoid touching them with bare skin.

Activity 1.4

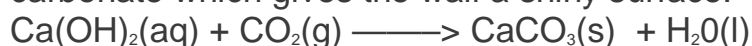
Brief Procedure: This activity asks to put some quick lime (CaO) into the water and observe the reaction.

Observation: Beaker feel hot after adding water

Explanation: Quick lime reacts with water to form slaked lime. The process is exothermic and releases heat.



Application in whitewashing: Slaked lime reacts with the carbon dioxide present in the air. It forms Calcium carbonate which is a shiny compound. For example, Marble used in the home is also the same. So we use slaked lime as whitewash paint in home walls. After two to three days slaked lime convert to carbonate which gives the wall a shiny surface.



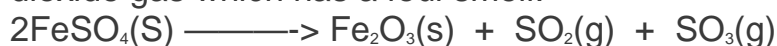
Another fact: We all know human, and animals absorb oxygen from air and emit carbon dioxide. When we blow air from the mouth into slaked lime solution using a tube, an insoluble precipitate of calcium carbonate forms. This phenomenon confirms the presence of CO₂ in our breath. [Activity 6.4 Life processes.](#)

Activity 1.5

Procedure: Activity 1.5 asks us to heat ferrous sulphate crystals (aka Green vitriol) in a test tube and see what happens.

Observation: The Green colour of ferrous sulphate changes to brown and peculiar sulphur smell comes out from the test tube.

Inference: Heating ferrous sulphate on test tube leads to decomposition of ferrous sulphate into a ferric oxide which is brown. It also liberates sulphur dioxide gas which has a foul smell.



Heating

Activity 1.6

Procedure: The question asks to heat an aqueous solution of lead nitrate into a test tube and see what happens.

Observation: A **yellow precipitate** of lead oxide form with the evolution of brown nitrogen dioxide gas which has an irritating smell.

Inference: Lead nitrate decomposes to lead oxide which is yellow. Nitrogen dioxide gas is liberated which has a brown colour and irritating smell.



Lead nitrate Heat Lead oxide Nitrogen oxide Oxygen

Activity 1.7

Procedure: The activity asks to electrolyse water using a 6-volt battery and check the volume of gases liberated at anode and cathode. The activity also asks to bring the gas at the flame and see what happens

Activity 1.7

- Take a plastic mug. Drill two holes at its base and fit rubber stoppers in these holes. Insert carbon electrodes in these rubber stoppers as shown in Fig. 1.6.
- Connect these electrodes to a 6 volt battery.
- Fill the mug with water such that the electrodes are immersed. Add a few drops of dilute sulphuric acid to the water.
- Take two test tubes filled with water and invert them over the two carbon electrodes.
- Switch on the current and leave the apparatus undisturbed for some time.
- You will observe the formation of bubbles at both the electrodes. These bubbles displace water in the test tubes.
- Is the volume of the gas collected the same in both the test tubes?
- Once the test tubes are filled with the respective gases, remove them carefully.
- Test these gases one by one by bringing a burning candle close to the mouth of the test tubes.

CAUTION: This step must be performed carefully by the teacher.

- What happens in each case?
- Which gas is present in each test tube?

Figure 1.6
Electrolysis of water

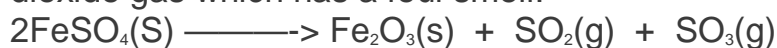
Activity 1.8

Procedure: Activity 1.8 asks us to heat ferrous sulphate crystals (aka Green vitriol) in a test tube and see what happens.

Observation: The Green colour of ferrous sulphate changes to brown and peculiar sulphur smell comes out from the test tube.

Ferrous sulphate decomposes into ferric oxide

Inference: Heating ferrous sulphate on test tube leads to decomposition of ferrous sulphate into a ferric oxide which is brown. It also liberates sulphur dioxide gas which has a foul smell.



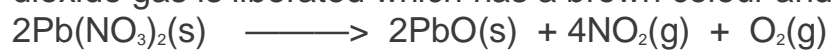
Heating

Activity 1.9

Procedure: The question asks to heat an aqueous solution of lead nitrate into a test tube and see what happens.

Observation: A **yellow precipitate** of lead oxide form with the evolution of brown nitrogen dioxide gas which has an irritating smell.

Inference: Lead nitrate decomposes to lead oxide which is yellow. Nitrogen dioxide gas is liberated which has a brown colour and irritating smell.



Lead nitrate Heat Lead oxide Nitrogen oxide Oxygen