

This lab has been taken from Addison Wesley Chemistry Laboratory Manual and modified by Jagdeep Bhandal

Electrolysis of Water **(A teacher demonstration experiment)**

Lab # 1

Background

Electrolysis of water is the process by which water is decomposed into oxygen and hydrogen gas, when electric current is passed through it. Water molecule is decomposed into H^+ and OH^- ions, when electric current is passed through it. These ions move to oppositely charged electrodes and are liberated as gases at different electrodes.



Objectives

To observe the electrolysis of water and determine the gases liberated at the end of experiment. Write balanced equation for this experiment.

Equipment (Teacher Demonstration)

- 1 electrolysis apparatus
- 1 rubber stopper, one holed
- 1 glass tube, 25 cm length, bent at 90° angle in center
- 1 large test tube

Safety

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All safety procedures from California Laboratory safety handbook should be followed. This experiment is to be done by the teacher. Always wear safety goggles when working in the lab.

Procedure

Action of electricity on water (electrolysis)- Water can be broken down into its component elements by passing electricity through it. This process is called electrolysis. The electrolysis apparatus consists of 6 volt battery, two platinum electrodes. When a current from a 6 volt battery is sent through the water. The H^+ and OH^- ions move to oppositely charged electrodes. Hydrogen gas will bubble at cathode and the oxygen will bubble at anode. The gases collected during the electrolysis can be tested with a glowing splint (which will flame up in the presence of oxygen) and burning splint (which will ignite hydrogen, causing an audible pop. H_2 gas is produced at twice the rate of O_2 gas in this reaction. Record your observations based on what happens with glowing splint at both electrodes.

Observation

	Positive electrode	Negative electrode
Electrolysis of water		

Data Analysis

1. Write the name of the gases liberated at the two electrodes based on the findings from the experiment.
2. Write an equation for decomposition of water due to electrolysis.

Conclusion

Describe in your own words the whole process of electrolysis of water.