

AP Chemistry Daily Videos
9.7 Galvanic (Voltaic) and Electrolytic Cells

Video #1

Electrochemical Cells

Definition:

Anode

What reaction occurs on this side and describe it?

Mass will

Electrons flow

What ion moves toward it?

Cathode

What reaction occurs on this side and describe it?

Mass will

Electrons flow

What ion moves toward it?



Battery/Galvanic /Voltaic Cells

ΔG is _____

Notes:

Voltage is _____

E°_{cell} _____

Electrolytic Cells

ΔG is _____

Notes:

Voltage is _____

E°_{cell} _____

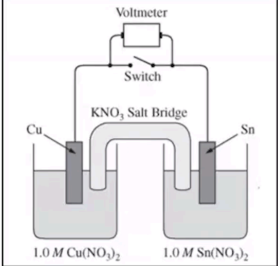
1. What is a Volt?

2. Draw a picture of a battery, including the voltmeter.

Video #2

1. Try the problem on your own. Then evaluate your work and identify any errors you may have made.

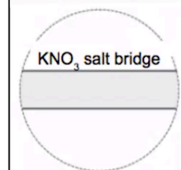
A student is given a standard galvanic cell, represented at right, that has a Cu electrode and a Sn electrode. As current flows through the cell, the student determines that the Cu electrode increases in mass and the Sn electrode decreases in mass.



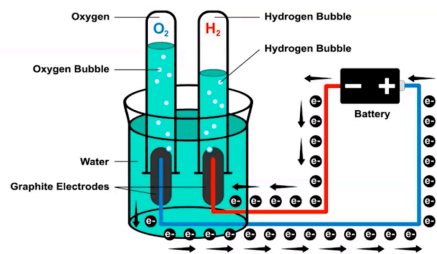
(a) Identify the electrode at which oxidation is occurring. Explain your reasoning based on the student's observations.

(b) As the mass of the Sn electrode decreases, where does the mass go?

(c) In the expanded view of the center portion of the salt bridge, shown in the diagram below right, draw and label a particle view of what occurs in the salt bridge as the cell begins to operate. Omit solvent molecules and use arrows to show the movement of particles.



2. Try the problem on your own. Then evaluate your work and identify any errors you may have made.



The diagram above shows an electrolytic cell that has been operating for several minutes. The chemical equation for the reaction occurring is $2\text{H}_2\text{O}(l) \rightarrow 2\text{H}_2(g) + \text{O}_2(g)$

- Is hydrogen gas produced at the anode or the cathode? Explain your response.
- Explain why the level of liquid below the hydrogen bubble is lower than the level of liquid below the oxygen bubble.