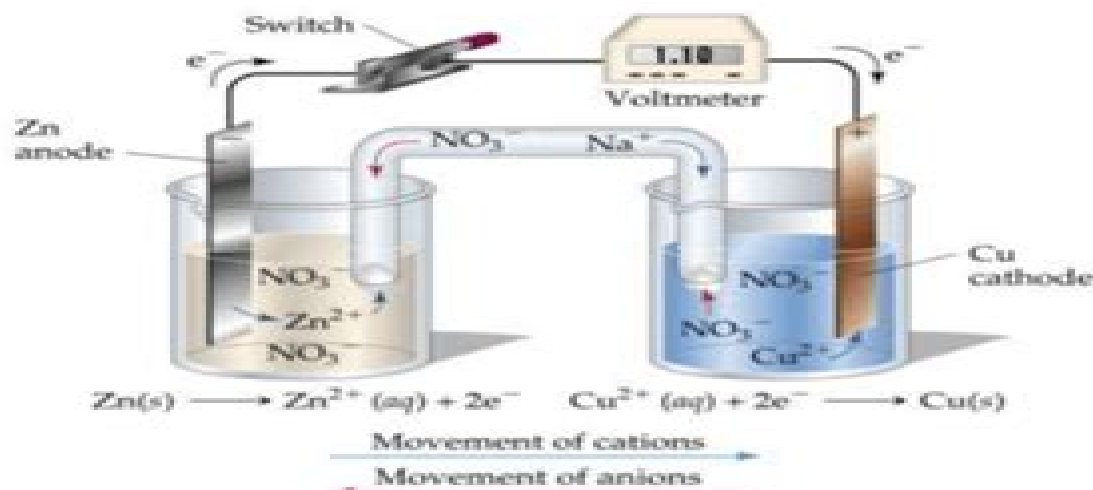


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Report for experiment 21G
Electrochemistry: Galvanic Cells and Batteries

Introduction to electrochemical cells (a.k.a. galvanic cells or batteries):

The energy produced by an **electrochemical cell** is due to a spontaneous redox reaction. An electrochemical cell consists of two **half-cells**. Each half-cell consists of an **electrode** (usually metal) submerged in its own salt. For example, the half-cell on the right in the figure below is made of a piece of copper submerged in a solution of copper nitrate. An oxidation reaction (loss of electrons) occurs in one of the half-cells and a reduction reaction (gain of electrons) occurs in the other half-cell. Each of these is called a **half reaction**. The **overall cell reaction** is the sum of the two half reactions. The electrode at which oxidation takes place is called the **anode**. The electrode at which reduction takes place is called the **cathode**. The two half cells are connected in two ways. The electrodes are connected by a wire and the salt solutions are connected by a "salt bridge". Electrons are lost by the anode and flow through the wire to the cathode. The electrons flow through the cathode until they touch the salt solution where they are taken up by cations in the solution. Thus, the metallic anode is oxidized and the cations in the cathode compartment are reduced. The cations resulting from the oxidation reaction at the anode enter the salt solution in the anode compartment. The uncharged metal atoms resulting from the reduction reaction stick to the cathode. Aqueous ions flow between the two half cells through the salt bridge to complete the electrical circuit. The cell potential (also called cell voltage) is basically the same thing as ΔG . It tells you how much work a battery can do. It is the "driving force" for the reaction. It tells how far the reaction is from equilibrium. A positive cell potential means that the forward reaction is spontaneous. (This is the opposite of the sign convention for ΔG .) When measuring the voltage of a cell with a voltmeter, the reaction does not take place because the voltmeter pushes the electrons back toward the anode. An ammeter reads the current (rate of current flow in Amps = coulombs/sec) as electrons flow from the anode to the cathode.



Galvanic Cell Lab Report

AW Rasmussen



Galvanic Cell Lab Report:

Unveiling the Power of Verbal Artistry: An Psychological Sojourn through **Galvanic Cell Lab Report**

In some sort of inundated with displays and the cacophony of quick communication, the profound power and psychological resonance of verbal artistry usually disappear into obscurity, eclipsed by the constant assault of sound and distractions. Yet, situated within the musical pages of **Galvanic Cell Lab Report**, a interesting perform of literary splendor that pulses with natural feelings, lies an unforgettable trip waiting to be embarked upon. Composed by way of a virtuoso wordsmith, that magical opus manuals viewers on a mental odyssey, softly revealing the latent possible and profound influence embedded within the intricate web of language. Within the heart-wrenching expanse of the evocative examination, we will embark upon an introspective exploration of the book is central styles, dissect its fascinating publishing fashion, and immerse ourselves in the indelible impact it leaves upon the depths of readers souls.

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