21.3 Electrochemical Cells (Video)

This project was preformed to supply **Libretext Authors** with videos on General Chemistry topics which can be used to enhance their projects. Also, these videos are meant to act as a learning resource for **all General Chemistry students**.

Video Topics

To investigate electrode potentials, we create an electro-chemical cell. Galvanic cells: Electrochemical cells that produce electrical current. Each 1/2 reaction in a redox reaction is used to create a 1/2 cell.

There are 2 Kinds of interactions:

1) Metal ions gain electrons to become solid metal on the electrode.

This is the reduction 1/2 reaction.

2) The metal on the surface of the electrode loses electrons and enters solution to become an ion.

This is the oxidation 1/2 reaction.

Electrons are generated at the anode and are pushed to the cathode. For the two 1/2 cell reactions to occur, the electrodes must be connected by a wire to allow for electron flow. A voltmeter can be used instead of a wire to measure the electron flow. To compensate for the movement of electrons there must be a corresponding flow of ions. For this to occur the two 1/2 cells are connected by a salt bridge. A salt bridge is usually a gel which contains an ionic species such KNO_3. Once all of the parts are connected there is the possibility for electron flow. The difference in the electrode potentials between the anode and the cathode 1/2 reactions is called the cell voltage. It can also be called the cell potential or the electromotive force (emf), and is represented by the symbol $\mathbf{E_{cell}}$.

The unit of cell voltage is a volt (V).

Link to Video

Electrochemical Cells: https://youtu.be/nyS1BQ2ZVIg

Attribution

- Prof. Steven Farmer (Sonoma State University)
