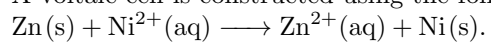


Worksheet 9

- For a galvanic cell composed of a nickel electrode and a copper electrode:
 - Draw a picture of a galvanic cell composed of a nickel electrode and a copper electrode
 - Write the overall reaction for the whole system.
 - Write the half reactions for each cell as reductions.
 - Which one should be written as an oxidation?
 - Calculate the standard cell potential.
- Describe how you will pick an anode and cathode for a given cell with only a table of reduction potentials.
- Electrons flow (from/to) the anode and (from/to) the cathode.
- The anode (loses/gains) mass while the cathode (loses/gains) mass.
- Which way will anions from the salt bridge flow?
 - From anode to cathode
 - From cathode to anode
- Write the Nernst equation.
- A voltaic cell is constructed with two $\text{Zn}^{2+} - \text{Zn}$ electrodes. The two compartments have $[\text{Zn}^{2+}] = 1.3 \text{ M}$ and $[\text{Zn}^{2+}] = 1.60 \times 10^{-2} \text{ M}$.
 - Which electrode is the anode of the cell?
 - 1.3 M
 - $1.60 \times 10^{-2} \text{ M}$
 - What is the standard emf of the cell? ($\text{emf} = E_{\text{cell}}$)

(c) What is the cell emf for the concentrations given?

8. A voltaic cell is constructed using the following reaction at 298K:



(a) What is the emf of the cell under standard conditions?

(b) What is the emf of the cell when $[\text{Ni}^{2+}] = 3.60\text{M}$ and $[\text{Zn}^{2+}] = 0.110\text{M}$?

(c) What is the emf of the cell when $[\text{Ni}^{2+}] = 0.220\text{M}$ and $[\text{Zn}^{2+}] = 0.990\text{M}$?