

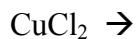
Name _____ Block: _____ Date: _____

Chemistry 12
ELECTROLYSIS

1. Consider the Electrolysis of Molten Potassium Iodide ($\text{KI}_{(l)}$)*Cathode Half-Reaction:*_____ $E^\circ =$ _____ V*Anode Half-Reaction:*_____ $E^\circ =$ _____ V*Overall Redox Reaction:*_____ $E^\circ =$ _____ V

Product at Cathode _____ Product at Anode _____ Min. Voltage Needed _____ V

Sketch this cell, labeling everything:

2. For the electrolysis of aqueous CuCl_2 using platinum (inert) electrodes. Find:The half-reaction at the Cathode: _____ $E^\circ =$ _____The half-reaction at the Anode: _____ $E^\circ =$ _____The overall redox reaction: _____ $E^\circ =$ _____

Product(s) at the Cathode: _____ Product(s) at the Anode _____

The minimum voltage required: _____ V

3. For the electrolysis of $\text{Na}_2\text{SO}_4(\text{aq})$ using carbon (inert) electrodes. Find:

The half-reaction at the Cathode: _____ $E^\circ =$ _____

The half-reaction at the Anode: _____ $E^\circ =$ _____

The overall redox reaction: _____ $E^\circ =$ _____

Product(s) at the Cathode: _____ Product(s) at the Anode _____

The minimum voltage required: _____ V

4. For the electrolysis of $\text{CuSO}_4(\text{aq})$ using inert electrodes. Find:

The half-reaction at the Cathode: _____ $E^\circ =$ _____

The half-reaction at the Anode: _____ $E^\circ =$ _____

The overall redox reaction: _____ $E^\circ =$ _____

Product(s) at the Cathode: _____ Product(s) at the Anode _____

The minimum voltage required: _____ V

5. Design a cell to electroplate an iron ring with copper. Include in the diagram: the ions present in the solution, the direction of ion flow, the substance used for the anode and the cathode and the direction of electron flow when the cell is connected to a DC power source.