

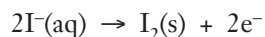
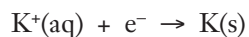
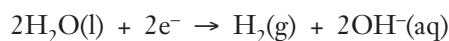
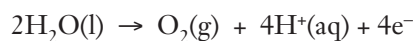
Electrolysis Reactions

Data Table

Electrolyte (Salt Solution)	Observations	
	Anode	Cathode
Potassium Iodide		
Sodium Chloride		
Copper(II) Bromide		

Post-Lab Questions

1. The following oxidation and reduction half-reactions are possible for the electrolysis of potassium iodide solution. The solution contains water molecules, potassium ions (K^+), and iodide ions (I^-).



a. What product was formed at the anode in the electrolysis of potassium iodide solution? Explain, citing specific evidence from your observations.

b. What product was formed at the cathode in the electrolysis of potassium iodide solution? Explain based on your observations.

c. Write the balanced chemical equation for the overall redox reaction in the electrolysis of aqueous potassium iodide.
Hint: Remember to balance the electrons!

2. Using Question #1 as a guide: (a) Identify the products that were formed at the anode and the cathode in the electrolysis of sodium chloride solution, giving the specific evidence for their formation. (b) Write the balanced chemical equation for the overall redox reaction.
3. Using Question #1 as a guide: (a) Identify the products that were formed at the anode and the cathode in the electrolysis of copper(II) bromide solution, giving the specific evidence for their formation. (b) Write the balanced chemical equation for the overall redox reaction.
4. Compare the product formed at the cathode in the electrolysis of copper(II) bromide solution versus that obtained in the electrolysis of aqueous potassium iodide or sodium chloride. Explain, based on the reactivity of the metals.
5. (*Optional*) Consult a table of standard reduction potentials (E°_{red}): Determine the minimum voltage necessary for the electrolysis of aqueous potassium iodide. *Hint:* $E^\circ_{\text{cell}} = E^\circ_{\text{red}}(\text{cathode}) - E^\circ_{\text{red}}(\text{anode})$