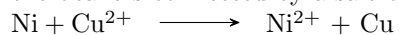


34. A cell is made up as follows. A piece of Ni foil is immersed in a beaker of  $\text{NiCl}_2$  solution, and a strip of Cu foil is immersed in a beaker of  $\text{CuSO}_4$  solution. The metal electrodes are connected by a wire and the beakers connected by a salt bridge. The net ionic equation for the reaction is:



- (a) Which electrode is the anode?
  
  
  
  
  
  
  
  
  
  
- (b) Toward which electrode do the  $\text{SO}_4^{2-}$  ions migrate?
  
  
  
  
  
  
  
  
  
  
- (c) Which way do the electrons flow in the wire?
  
  
  
  
  
  
  
  
  
  
- (d) If 0.025 mol of  $\text{Cu(s)}$  is produced in the reaction, how many moles of electrons flow through the wire?
  
  
  
  
  
  
  
  
  
  
- (e) Toward which electrode do the  $\text{Ni}^{2+}$  ions migrate after being formed?

35. An electrochemical cell is made by placing a weighed strip of Sn in a beaker containing 1 M  $\text{SnSO}_4$  and a weighed strip of Ag in a beaker containing 1 M  $\text{AgNO}_3$ . The metal strips are connected by a wire and the beakers are connected by a salt bridge. After several hours the Sn electrode decreases in mass.
- (a) What is the net ionic equation for the reaction?
  - (b) Which electrode is the cathode?
  - (c) Toward which electrode do the  $\text{Ag}^+$  ions migrate?
  - (d) Which way do the electrons flow in the wire?
  - (e) Does the Ag electrode gain or lose mass?
  - (f) If 0.010 mol of Sn(s) goes into solution, how many moles of electrons flow through the wire?
  - (g) If 0.020 mol of Sn goes into solution, how many moles of Ag are involved in the reaction?
  - (h) How many moles of electrons flow through the salt bridge in part (g)?