

## 21 • Electron Transfer Reactions

### CRYSTAL LAB FOLLOW UP

Note: The acetic acid and sodium silicate provide the medium for the reactions. They are not *necessarily* reactants.

#### Tube 1

1. What two chemicals react in Tube #1? \_\_\_\_\_
2. Write the balanced net ionic equation for the reaction. Assume  $\text{Fe}^{2+}$  is a product.
3. Is this an oxidation-reduction reaction or an acid-base reaction? \_\_\_\_\_
4. If redox, what is the reducing agent? \_\_\_\_\_  
If acid-base, indicate one conjugate acid-base pair. \_\_\_\_\_
5. Visually, what two changes take place as the reaction proceeds?  
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6. Assuming that the  $\text{Cu}^{2+}$  ion is the limiting reactant, what mass of copper metal is formed? Show your work.

#### Tube 2

7. What two chemicals react in Tube #2? \_\_\_\_\_
8. Write the balanced **molecular equation** for the reaction:
9. The crystals that form are \_\_\_\_\_.
10. If this reaction were used to construct a standard electrochemical (Galvanic) cell, what voltage would be expected? Show your work.  $E^\circ =$  \_\_\_\_\_
11. According to the "Tips" section of the handout,  $\text{H}_2(\text{g})$  bubbles are produced in Tube #2. Write the net ionic equation for the reaction that could produce these bubbles.

#### Tube 3

12. What two chemicals react in Tube #3? \_\_\_\_\_
- 13.-15. Write the balanced molecular, ionic, and net ionic equations for the reaction that takes place in the tube.