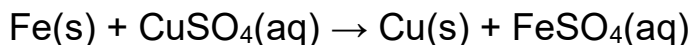


SALS Activity 8

Copper tree

This activity demonstrates a single displacement chemical reaction during which iron, which is more reactive than copper, displaces copper from a copper sulfate solution as shown in the following reaction:



Materials

- SALS app downloaded onto iPhone or iPad
- SALS probe
- Iron rod or large iron nail
- 0.5 M Copper (II) sulfate solution
- 250mL glass beaker
- Rubber or latex gloves

Caution

Copper sulfate is poisonous. **Be sure all students wear gloves and use only the SALS probe to detect the copper tree.**

Directions

1. Wearing gloves, take initial tone/Hertz readings of the copper sulfate solution and the iron nail under consistent ambient lighting with the SALS probe. Store these tones or note them down.
2. Pour some copper sulfate solution into the glass beaker.
3. Gently place the nail or iron rod into the copper sulfate solution, and lean it against one side of the glass beaker.
4. Allow the reaction to proceed overnight.
5. The next day, wearing gloves, remove the nail from the solution.
6. Take tone/Hertz readings of the solution and the nail/rod under the same ambient light conditions as the initial readings. Store the tones or note them down.
7. Compare the initial and final tones of the solution and initial and final tones of the nail and form a hypothesis as to what took place overnight.
8. If you wish, gently explore the nail with a gloved hand and the SALS probe.

Questions to answer

1. What changed about the shape of the nail?

2. What do you think changed about the solution?

Reference

Chemistry Revision - Iron & Copper Sulphate solution

<https://www.youtube.com/watch?v=KmhD8BmEFlo>