

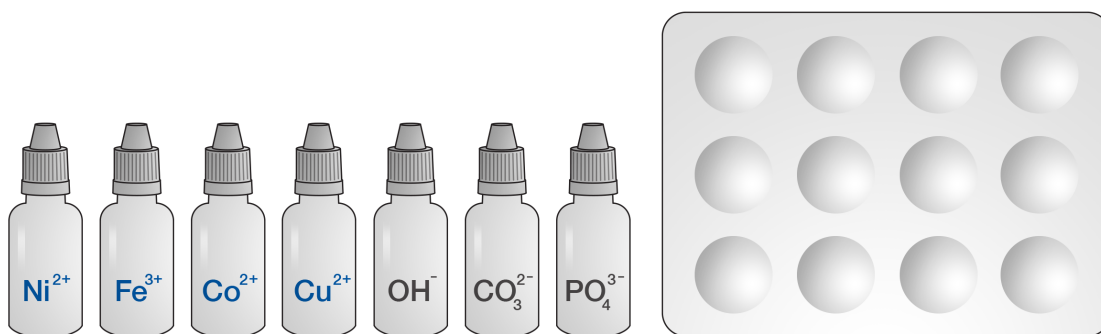
## 5B – NAMING IONIC COMPOUNDS

### INQUIRY

How do we name different ionic compounds?

### MATERIALS

- Dropper bottles with cation labels ( $\text{Ni}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Co}^{2+}$ ,  $\text{Cu}^{2+}$ )
- Dropper bottles with anion labels ( $\text{OH}^-$ ,  $\text{CO}_3^{2-}$ ,  $\text{PO}_4^{3-}$ )
- Spot plate
- Piece of white paper



### BACKGROUND

Ionic compounds are formed when a cation and anion form an ionic bond to make a compound. Cations are formed by metal atoms that lose valence electrons, and anions are formed by nonmetal atoms that gain valence electrons. Some ions can also be formed by more than one atom. These are known as polyatomic ions. Ionic compounds are electrically neutral. The cation and anion charges balance to zero, so the chemical formula is based off the charges of the cation and anion.

In this lab, you will be doing a set of reactions between different cations and anions, recording your observations, writing out the chemical formula based off the charges of the ions, and then naming the new compound. Typically, reactions between cations and anions in solution can have two outcomes: either a solid is formed (known as a precipitate), or the ions don't react and the ions stay in solution.

### SAFETY

Follow these important safety precautions in addition to your regular classroom procedures:

- Wear safety goggles at all times.
- Notify your teacher of all spills and dispose of your chemicals in the proper waste container.

## **PROCEDURE**

1. Obtain a spot plate, along with a set of dropper bottles with cations and a set of dropper bottles with anions. If the well plate is clear, place it on a white or black piece of paper to help with detecting changes.
2. Clean your spot plate before starting the investigation. In each well of the spot plate you will be mixing one cation with one anion.
3. Set up your spot plate to match the table below in the Analysis section. Write notes on the piece of paper to help keep track of substances and observations.
4. Place 1-2 drops of cation and anion each into the wells, being careful to not dip the tip of the dropper bottles into any solution in the well.
5. Record the name and formula for every combination that produces a precipitate in Table 1 on your answer sheet.

## **ANALYSIS**

Complete the analysis on your answer sheet.

## **QUESTIONS**

Answer the questions on your answer sheet.