**Hypothesis:**

**Materials:** 1*M* Na­OH, 0.5*M* CuCl2, 0.5*M* CaCl2, Mg, Zn, test tubes, test tube rack, and dropper bottles

**Procedure:**

Single Replacement Reaction:

1. Add 2 pipettefuls of CuCl2 to test tube. Add a few pieces of magnesium.
2. Repeat using a small amount of the zinc.
3. Then rinse out the test tubes and place upside down to dry.

Double Replacement Reaction:

1. Add 2 pipettefuls of both Na­OH and CuCl2 to a test tube.
2. Swirl the test tube gently until you observe the formation of a precipitate.
3. Repeat with NaOH and CaCl2
4. Then rinse out the test tubes and place upside down to dry.

**Results:**

|  |  |
| --- | --- |
| Reactants | Observations |
| Mg and CuCl2 |  |
| Zn and CuCl2 |  |
| Na­OH and CuCl2 |  |
| NaOH and CaCl2 |  |

**Post Lab Questions:**

1. Complete and balance the reactions from the lab (remember OH is a polyatomic ion OH1-)
   1. \_\_\_ Mg +\_\_\_ CuCl2 →
   2. \_\_\_ Zn (has charge of II when bonded) +\_\_\_ CuCl2 →
   3. \_\_\_ NaOH +\_\_\_ CuCl2 →
   4. \_\_\_ NaOH +\_\_\_ CaCl2 →
2. Based off your results is Mg or Cu more reactive? **Explain** your answer using your **lab results**.
3. Using your activity series would you expect Ag to react if added to the CuCl2­? Explain why.
4. If you tried adding Cu to Zn(NO3)2 would you expect a reaction to occur? Why or why not?
5. Write the indication(s) of a chemical reaction you saw for each reaction:
   1. Mg and CuCl2­
   2. Zn and CuCl2­
   3. NaOH and CuCl2­
   4. NaOH and CaCl2­

**Conclusion:**