**Properties of Ionic Compounds Lab Answer Sheet** ****

 **Name:**

 **Partner(s):**

**PART A: Properties of Ionic Compounds Data Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test tube #** | **Chemical formula** | **Chemical name** | **Observations (in test tube)** | **Observations (flame colour)** |
| **1** | CuCl2 |  |  |  |
| **2** | SrCl2 |  |  |  |
| **3** | BaCl2 |  |  |  |
| **4** | NaOH |  |  |  |

**PART B: Producing New Ionic Compounds Data Table**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Chemical names** |  | **Chemical names (prediction)** |
| **Test tube #** | **Reactant 1** | **Reactant 2** | **Observations after mixing** | **Product 1** | **Product 2** |
| **1** | Copper (II) chloride | Sodium hydroxide |  |  |  |
| **2** | Strontium Chloride | Sodium hydroxide |  |  |  |
| **3** | Barium chloride | Sodium hydroxide |  |  |  |

**Appropriate clean-up has been completed & teacher shown = stamp**

**PART C: Follow-Up Questions**

1. When might the burning of different ions to produce colours be useful? (Hint: Halloween)
2. In this lab activity, a **precipitate** was formed in all three reactions. Based on your observations, what do you think a precipitate is?
3. The reaction you observed in this activity is called a ***double replacement* reaction**. The metals of the compounds switch places to form new ionic bonds with the opposite non-metals. Write the chemical formulas for the following sets of ionic compounds. Then, predict the names and correct chemical formulas for the products! Ex. **AB + CD** becomes **AD + CB**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **A.** | **Reactant 1** | **Reactant 2** | **Product 1** | **Product 2** |
| **Chemical Name** | **Silver nitrate** | **Strontium hydroxide** |  |  |
| **Chemical Formula** |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **B.** | **Reactant 1** | **Reactant 2** | **Product 1** | **Product 2** |
| **Chemical Name** | **Lead (II) bromide** | **Potassium iodide** |  |  |
| **Chemical Formula** |  |  |  |  |

**Conclusion: What are three things that you learned in this lab? Be specific.**(\*Refer to the **purpose** of the lab – do not talk about safety/equipment)

**Properties of Ionic Compounds Lab Instructions**

**Purpose:**

* to investigate the chemical and physical properties of some common ionic compounds
* to practice naming / formula writing
* to work on proper lab techniques and safety

**Materials:** test tubes

* 1 inoculation loop
* 1 small beaker
* 1 bunsen burner
* Safety goggles!
* Paper towel
* test tube rack
* 6 test tubes
* Solution 1 – **CuCl2**
* Solution 2 – **SrCl2**
* Solution 3 – **BaCl2**
* Solution 4 – **NaOH**
* Solution 4 – **NaOH**
* Solution 4 – **NaOH**

**Procedure:**

**PRE-LAB: READ ALL INSTRUCTIONS BEFORE BEGINNING ANY SECTION OF THE LAB**

1. Do not write on this Instruction Sheet—you need to hand it back in to get full marks!
2. You will work in a group of 3 or 4 people (no more, no less). Find a group and an empty table. Keep a pen, pencil and eraser on your desk and put your binders, jackets and backpacks at the back of the room, or on a non-occupied table.
3. **Each member of the group will fill in their own answer sheet**. However, your group will be choosing only one to be marked, so make sure you all agree on the answers.
4. **Each person will write a separate (different) conclusion** though, so place the answer sheet to be marked with all group member names on top, and staple to the other sheets (star the name of the person’s getting marked).
5. Pay attention to the teacher instructions on how to use a Bunsen Burner/safety.
6. PUT YOUR SAFETY GOGGLES ON NOW AND WEAR THEM FOR THE ENTIRE LAB.

**PART A: Properties of Ionic Compounds**

1. Using a paper towel underneath the test tube rack, label six test tube places by numbering them 1 through 6.
2. Have one group member get samples of solutions 1 through 3 and another group member get 3 samples of NaOH for test tubes 4, 5 and 6. Each solution should fill approximately 2cm of the test tube. Place each test tube in its appropriately labeled spot in the test tube rack – don’t get them mixed up!
3. The 3rd (and 4th) members should get all other necessary materials including beaker with water in it.
4. Complete the first two blank columns in the data table on your answer sheet.

**See Data Table Part A** **on Answer Sheet**

1. Set up a Bunsen burner according to the instructions given by your teacher. One at a time, take the inoculation loop and dip it into the first test tube (you will need to ensure that the inoculation look is well covered in the solution). Briefly place the soaked tip over the flame. Look carefully to **observe the colour change** (if any) of the flame. Record your observations in the last column of the data table. Dip the inoculation loop into a beaker with water to rinse and cool it off!
2. Repeat step five until you have tested all 4 different solutions.

**PART B: Producing New Ionic Compounds**

1. Pour the contents of test tube #4 into test tube #1. Let sit for several minutes so you can clearly observe the results.  **You started with 2 ionic compounds and have just created 2 NEW ionic compounds**. **HINT** – look for 2 products in your test tube. Record your observations in the first empty column of the data table in section B of your answer sheet.
2. Pour the contents of test tube #5 into test tube #2. Let sit for several minutes so you can clearly observe the results. Record as above
3. Pour the contents of test tube #6 into test tube #3. Let sit for several minutes so you can clearly observe the results. Record as above.

**While you wait to make your observations, read and think about procedure #4.**

1. Each solution in this lab is an ionic compound, meaning a bond between a metal and a non-metal. What happens in the reactions above is that the **metals switch places** and bond with the new non-metal in the solution. See if you can figure out the **name** of the new products formed in each reaction. Record the names in pencil on the data table above. Check with your teacher to make sure you’ve got it before you continue!

**Post-Lab:**

1. Put away all your equipment, wash out your test tubes and leave them to dry on the rack, and wash your desk. Have your teacher sign or stamp your lab sheet when you have completed this task.
2. Complete all follow-up questions and **write your own conclusion.**
3. **Staple all answer sheets together** and hand in to your teacher, along with this instruction sheet.