Precipitation Reaction Lab

Purpose:

The purpose of this lab is to conduct reactions between compounds and identify the products. Students will then be able to identify the precipitates formed and write net ionic equations for their reactions.

Materials:

* Well plates - 2
* safety goggles
* BaCl2, 0.1 M

• Ba(NO3)2, 0.1 M

• Na2C2O4, 0.1 M

* NaCl, 0.1 M
* NaNO3, 0.1 M

• Na2SO4, 0.1 M

**Always wear safety goggles to protect your eyes.** If you get a chemical in your eyes, immediately flush the chemical out at the eyewash station while calling to your teacher. Know the location of the emergency lab shower and eyewash station and the procedures for using them.



**Do not touch any chemicals.** If you get a chemical on your skin or clothing, wash the chemical off at the sink while calling to your teacher. Make sure



you carefully read the labels and follow the precautions on all containers of chemicals that you use. If there are no precautions stated on the label, ask your teacher what precautions to follow. Do not taste any chemicals or items used in the laboratory. Never return leftovers to their original container; take only small amounts to avoid wasting supplies.

**Call your teacher in the event of a spill.** Spills should be cleaned up promptly, according to your teacher’s directions.

**Acids and bases are corrosive.** If an acid or base spills onto your skin or clothing, wash the area immediately with running water. Call your teacher in the event of an acid spill. Acid or base spills should be cleaned up promptly.

# Procedure:

1. Put on safety goggles and collect two well plates.
2. Thoroughly wash and dry both well plates to remove and possible residue.
3. Record at least three observations while completing the lab experiment.
4. Arrange the well plates side by side and follow the pattern on the data table.
5. Create a data table in your report to record your observations as referenced in **Table 1** after you have performed each test. For each possible combination, indicate *PPT* if a precipitate forms and *clear* if no precipitate forms.
6. Place a drop or two of one of the solutions in the appropriate well according to the data table. Add a drop or two of the second solution. Do not allow the tip of the dropper to touch the drops in the well. Record your result.
7. Repeat for all possible combinations indicated in **Table 1,** and record your results. The boxes with a large “X” placed in them are repeats and do not need to be mixed.
8. Clean all apparatus and your lab station. Return equipment to its proper place. Dispose of chemicals and solutions in the appropriate discard containers. Do not pour any chemicals down the drain or in the trash. Wash your hands thoroughly before you leave the lab and after all work is finished.

Data:

Table 1: Test results for each possible combination.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | NaCl | NaNO3 | Na2C2O4 | Na2SO4 | BaCl2 |
| Ba(NO3)2 |  |  |  |  |  |
| BaCl2 |  |  |  |  | X |
| Na2SO4 |  |  |  | X | X |
| Na2C2O4 |  |  | X | X | X |
| NaNO3 |  | X | X | X | X |

Analysis Questions:

1. Write a complete balanced equation for each reaction that forms a precipitate during your experiment. Then write the net ionic equation for each precipitate formed. If done correctly, there should be four reactions that produce precipitates.
2. When concentrated solutions of sodium chloride and silver nitrate are mixed, what compound is likely to precipitate out of solution? What would you see take place during your experiment to identify this compound as a precipitate?
3. Which ions cancel out during the reaction stated in question #2? What is the name of these ions that take no part in a chemical reaction?