

PRECIPITATES AND SOLUBILITY RULES

Reminder – Goggles must be worn at all times in the lab!

PRE-LAB DISCUSSION:

Generally, solubility is thought of as the tendency of a substance (solute) to dissolve in another substance (solvent). For qualitative purposes, we use such terms as “soluble,” “insoluble” and “slightly soluble” to describe these tendencies.

If aqueous (water) solutions of two different ionic compounds are mixed, one of two things will occur. If all of the ions remain free (soluble), then nothing will happen. That is, the mixture of solutions will remain clear, or transparent. However, if two oppositely charged ions are attracted to one another strongly enough, they may bond together to form an ionic compound that is insoluble in water. In such cases, a precipitate forms.

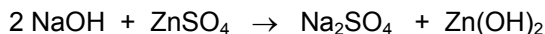
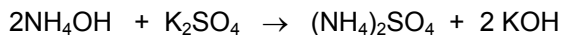
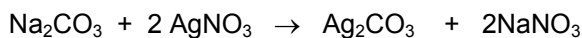
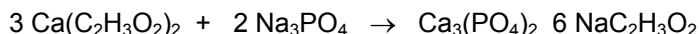
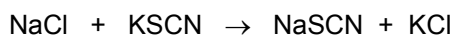
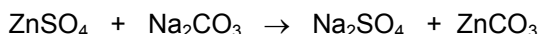
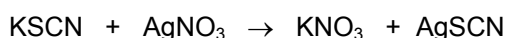
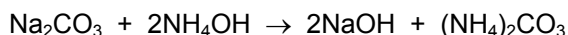
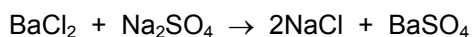
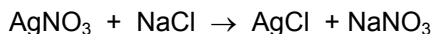
In this experiment, aqueous solutions of several different ionic compounds will be used. Different combinations of solutions will be mixed and the results observed. For those mixtures in which precipitates form, the identity of the precipitate will be determined from the balanced chemical equation. You will then attempt to make some generalizations about the solubility of the various ions.

PURPOSE:

To observe the formation of various precipitates and to reinforce the basic solubility rules for the AP course.

PROCEDURE:

1. Get a couple of spot plates from your lab drawer. Make sure that they are clean and dry before you start.
2. I strongly suggest that you use the black background of your lab table under the spot plates, since light colored precipitates are very difficult to see unless there is a dark background.
3. For each reaction, mix three drops of each **reactant** solution in a depression on the spot plate. Be careful not to contaminate the dropping bottles – do not touch them to the solutions in the spot plate depressions.
4. For each reaction in which there IS a precipitate, circle the formula for the precipitate on your lab paper. Use your knowledge of the basic solubility rules to come to your conclusion.
5. If no precipitate forms, write “NR” (no reaction).
6. Here are the reactions to perform. Write these equations in the results section of your lab:



7. When you are done with all of the reactions, clean and dry the spot plates before returning them to your lab drawer

RESULTS

OBSERVATIONS AND DATA:

This is where you will write the equations that you perform and identify precipitates, as well as identify the instances in which there was no reaction.

CALCULATIONS AND GRAPHS:

For each reaction in which there WAS a precipitate: Write the net ionic equation for the formation of the precipitate.