

7C – SOLUBILITY RULES

INQUIRY

How can we tell the difference between a chemical change and a physical change?

MATERIALS

- Well plate or small test tubes
- Toothpicks (25)
- Piece of white paper
- 0.10 M Na_2SO_4 in dropper bottle, 2-3 drops
- 0.10 M Na_2CO_3 in dropper bottle, 2-3 drops
- 0.10 M AgNO_3 in dropper bottle, 2-3 drops
- 0.10 M NaNO_3 in dropper bottle, 2-3 drops
- 0.10 M NaOH in dropper bottle, 2-3 drops
- 0.10 M NaCl in dropper bottle, 2-3 drops
- 0.10 M $\text{Cu}(\text{NO}_3)_2$ in dropper bottle, 2-3 drops
- 0.10 M $\text{Pb}(\text{NO}_3)_2$ in dropper bottle, 2-3 drops
- 0.10 M KNO_3 in dropper bottle, 2-3 drops



BACKGROUND

Sometimes when you mix two aqueous salt solutions, one of the products formed is a solid called a precipitate. The ions in solution that do not form a precipitate are called spectator ions. In this laboratory, you will see that some ions in solution are soluble and that others are insoluble. The insoluble ions form a solid precipitate in solution.

SAFETY

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

- Wear safety goggles at all times.
- Use caution with the silver nitrate solution as it can cause stains
- Notify your teacher of all spills and dispose of your chemicals in the proper waste container.

PROCEDURE

1. If the well plate is clear, place it on a piece of paper to help with detecting changes.
2. Using the information in Table 1 on your answer sheet as a guide, add 2 or 3 drops of each solution listed across the top with 2 or 3 drops of each solution listed down the side into a well plate.
3. Use a toothpick to mix each pair of solutions one at a time. Use a new toothpick for each well. Keep track of which ones you are mixing by writing notes on the paper.
4. Record observations in Table 1 on your answer sheet. Record the color and consistency of each precipitate that forms from mixing two solutions. If there is no precipitate, then write “no reaction.”
5. Clean up according to the teacher’s instructions.

 **ANALYSIS** 

Complete the analysis on your answer sheet.

 **QUESTIONS** 

Answer the questions on your answer sheet.