

Name: _____

Date: _____

Identification of an Unknown – Flame Tests

Materials:

calcium nitrate

lead(II) nitrate

silver nitrate

Equipment:

Bunsen burner

wood splint

beakers

*camera

test tubes

test tube rack

graduated cylinder

Procedure:

Determination of the Cation:

1. Obtain an unknown compound. Make observations about the color of the solid.
2. Dissolve the unknown in a beaker containing approximately 50 mL of distilled water.
3. Obtain a wood splint and soak the end of it in solution.
4. Light the burner.
5. Pass the splint through the flame repeatedly. Pay attention to the color of the flame. Do NOT allow the splint to remain in the flame too long or it will burn. The supply of splints will be limited. You may use a camera to photograph the flame.
6. When done, rinse the splint in the sink to ensure it is cooled off. It may then be placed in the trash.

Determination of the Anion:

1. Obtain three empty test tubes and arrange them in a test tube rack.
2. Transfer fresh 10 mL aliquots of the unknown to each of these test tubes.
3. Using a clean graduate, measure approximately 10 mL of calcium nitrate.
4. Add this sample to one of the test tubes. Note any changes that take place.
5. Repeat steps 3 – 4 with each of the available solutions in the following order:
 - a. lead (II) nitrate
 - b. silver nitrate
6. Discard any precipitates/aqueous waste into the appropriate waste container.

Conclusion:

Identify the unknown solid given to you. It is an ionic compound, and you will be graded on the accuracy with which you identify both the cation and anion. However, you will also be graded on the defense of your choices, so a weak argument (even if correct) will not receive full credit.

Possible cations:



Possible anions:

