

Qual Groups 1 & 2 Unknown

Experiment

- You will be issued an Unknown solution.
Immediately record the number of your unknown.
- Repeat the Groups 1 & 2 procedure, substituting your unknown solution for the known cation mixture in Step 1–A1.
- Carefully record all your observations. Some observations will be different from the Known observations since one or more cations will be absent.
- You may not be able to perform all of the steps. For example, if you do not have a precipitate needed for that step.

When in doubt if you should omit a procedural step, check with your lab instructor.

- Fill in your **data sheet** and **flowchart** as you proceed through the experiment. Be sure to pay close attention to the **inferences** column of your data sheet. The boxes in your flowchart for observations will be different in the UNKNOWN compared to the KNOWN.

RATIONALE

- For an UNKNOWN solution, the **RATIONALE IS** the Discussion section of your lab report. The **Rationale** is a discussion of the logic used to determine the identity of the unknown.
- The **Rationale** must explain **step-wise** how the your observations prove the presence or absence of a cation. It is **NOT** just the results of the confirmation step.

Sample Rationale:

Ag^+ is present because a white precipitate formed when HCl was added in step 1-A, and only Ag^+ and Pb^{2+} form insoluble salts. Then the white precipitate did NOT dissolve in hot water. Only PbCl_2 , not AgCl , dissolves in hot water. The presence of Ag^+ was confirmed by the white precipitate dissolving in NH_3 , step 1-D and then reprecipitating in step 1-E. Only the AgCl salt will dissolve in NH_3 and precipitate again, when the solution is acidified.

- The information about the solubility of the compounds, what cations will form solids and what cations will stay in solution, is all given in the Group Background section of the experiment.
- **You must READ and APPLY the information given in the Background section.**

Groups 1 & 2 Flowchart

