

Qualitative Analysis: Identification Of An Unknown Cation ("Final Lab")

In the past two labs, you have analyzed Group I and III cations. In this lab, you will use the techniques outlined in the previous labs to identify the cations present in an unknown sample. Each student will be assigned an unknown mixture containing between one and seven cations. The cations could all be from one group or one from each group, etc.

Each student will work individually. You will be allowed to bring lab handouts from the previous labs to follow procedures. There are **seven** possible cations; some or all of them may be used in your unknown. Students will be graded on correctly identifying the presence or absence of the cations. Because there is a time limit to this lab exercise, do not plan on performing every step from each lab, only the procedures necessary based on your results at each step. Each ion correctly identified is worth 8 points for a total of 56 points.

In addition to performing the lab, a **flow chart** outlining the procedure utilized to identify the unknown solution should be included. It should include how to identify cations from Groups I and III. The flow chart will be turned in when you complete the lab or time has run out. The flow chart is worth 24 points based on completeness, clarity and appearance. This must be an *original* flowchart and not merely a photocopy of a flowchart used in previous lab(s).

Hint: complete the flow chart before the final lab begins to ensure adequate time for chemical analysis.

Note: Point distributions may vary. Your lab instructor will inform you of any changes.

Name: _____ Lab Section: _____

Qualitative Analysis: Final Lab Data Sheet

You may use any CH 223 lab sheets and the flowcharts for this assignment to help you with the analysis of the unknown cations. Good luck!

Circle either yes or no for each metal cation in your unknown.

Unknown Number: _____

Pb²⁺: yes no

Hg₂²⁺: yes no

Ag⁺: yes no

Fe³⁺: yes no

Ni²⁺: yes no

Cr³⁺: yes no

Al³⁺: yes no

Be sure to **staple** your flowchart(s) to the back of this page.

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