

Name: _____

Section: _____

4. Test for the Iodide Ion

Acidify a 2 mL sample of a new test solution by adding 6 M HCl. Add 1 mL of 0.1 M FeCl₃ to oxidize any I⁻ to I₂. Add 1 mL of hexane and agitate the mixture. A purple color of I₂ in the hexane layer indicates I⁻ was present in the original sample.

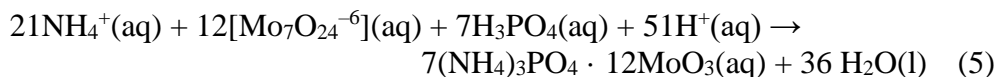


5. Test for the Phosphate Ion

(A) If no I⁻ was present, mix about 2 drops of 0.5 M (NH₄)₆Mo₇O₂₄ reagent with 5 drops of 6 M HNO₃ to 1 mL of a new test solution.

(B) If I⁻ was present, add 5 drops of 6 M HNO₃ to 1 mL of a new test solution and boil the test tube for 5 to 10 minutes to remove the iodide. Then add 2 drops of the ammonium molybdate reagent to the test solution.

A yellow precipitate of ammonium phosphomolybdate, (NH₄)₃PO₄·12MoO₃, appearing at once or after the mixture has been warmed a few minutes to 40 °C indicates the presence of PO₄⁻³.



Record your observations for your known and unknown solutions below. Determine the identity of your unknown.

Experiment Observations and Results:

UNKNOWN_____

IONS PRESENT_____

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Pre-Lab Assignment:

1. Construct separate flow charts for the identification of the various five anions in a known sample. Refer to Experiment #10 for guidelines on preparing your flow charts.

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Post-Lab Assignment: Anion Analysis

1. A solution may contain Cl^- , CO_3^{2-} , PO_4^{3-} , and/or SO_4^{2-} . No effect is observed upon addition of 6 M HNO_3 ; this resulting mixture will be referred to as solution 1. No effect is observed on addition of 0.1 M AgNO_3 to solution 1. A white precipitate is reported on addition of 1 M BaCl_2 to solution 1. Finally, a yellow precipitate is observed on addition of 0.5 M $(\text{NH}_4)_6\text{Mo}_7\text{O}_{24}$ to solution 1. Which of the ions are present, which are absent, and which remain undetermined? State your reasoning below. NOTE: simply listing ions below without the appropriate reasoning will NOT earn you any credit!

Present _____

Absent _____

In Doubt _____