

Name: _____

Date: _____

Separation of Ions via Displacement

My solution is # _____

Objective: To separate a solution containing various metallic cations by precipitating them out, one at a time, using a select group of anions.

Materials:

solution containing three of the following cations: Pb^{+2} , Zn^{+2} , Ca^{+2} , Ni^{+2} , Sr^{+2} , and Fe^{+3}
aqueous solutions of: sodium iodide, sodium carbonate, and sodium sulfate

Equipment:

test tubes	test tube racks	brush	centrifuge
droppers	rubber stoppers		

Procedure:

Design and describe a method for separating the cations listed above, one at a time. The only reactants that can be used are the sodium solutions also listed above. Here are some hints:

- Begin by obtaining 20 mL of the cation solution.
- Measurements do not need to be exact – this lab is qualitative
- Excess sodium solutions can be flushed down the sink.
- Excess of the cation solution as well as completed reactions and precipitates must go into the waste.

Results:

Describe what was observed.

Analysis:

Write the full (balanced, states of matter) reaction equations for each step (separation) performed.