

Laboratory Report

Activity of Metals

		Calcium	Magnesium	Aluminum
Reaction with H ₂ O	Observations			
	Litmus test			
Reaction with HCl	Observations			
	Match test			

Solubility of Alkaline Earth Compounds

MgCl₂ CaCl₂ SrCl₂ BaCl₂ Unknown

(NH ₄) ₂ CO ₃	A1	A2	A3	A4	A5	
Na ₂ SO ₄	B1	B2	B3	B4	B5	
KIO ₃	C1	C2	C3	C4	C5	

1. Which Group 2 metal, magnesium or calcium, is more active? Cite your evidence.
2. Which period 3 metal, magnesium or aluminum, is more active? Cite your evidence.
3. Rank the three metals tested in Part A from most active to least active.
4. Write a general statement describing the periodic trend in metal activity within a group (vertical column) of the periodic table.

5. Write a general statement that describes the periodic trend in metal activity within a period (horizontal row) of the periodic table.

6. Locate the following metals on the periodic table: **magnesium**, **potassium**, and **sodium**. Based on your answers to Questions 4 and 5, rank these metals in order of their expected activity, from most active to least active.

7. Litmus paper changes color in acidic (red) and basic (blue) solutions. The word alkaline is a synonym for basic. Give two reasons why the Group 2 metals are called **alkaline earth** metals.

8. Which alkaline earth metal formed the most precipitates? The fewest?

9. Write a general statement describing the periodic trend in the solubility of alkaline earth metal compounds.

10. Use the solubility pattern observed for the known and unknown alkaline earth compounds to deduce the identity of the unknown alkaline earth ion. Explain your reasoning.

11. Using Equation 1 in the *Background* section as an example, write a chemical equation for each precipitate-forming reaction that was observed for **strontium**. Include the abbreviations (aq) and (s) to show what compound is responsible for the precipitate in each case.