

Name _____ Period _____ Date _____

Lab 402: Periodic Properties of the Elements

Purpose

To study the variations in chemical and physical properties of elements in the same families.

Procedure

Physical Properties

1. List the physical properties of the following elements in the table below

Observations

	Ca	Na	K	Mg
Hard / Soft				
Color of element				
Color of Oxide				
Physical State				
Metal or Nonmetal				
Density compared to H₂O				

Chemical Properties

1. Study the chemical properties of each element. Repeat the following procedure for each.
 - a. To about 25 mL of deionized water in a 250 mL beaker, add 1 drop of phenolphthalein. (Phenolphthalein turns pink in bases, alkali solutions).
 - b. Drop a small amount of the element into the beaker and **COVER IMMEDIATELY** with a watch glass.
 - c. Determine the speed of the reaction, if any, and record your results below.
 - d. Test the gas, if any, that is formed. Use a lighted splint at the top of the beaker. Do this without removing the watch glass.
BE PREPARED FOR A REACTION
 - e. If no reaction appears to occur, heat the beaker with the water and the element to boiling. Observe and test for gas as above.
 - f. Empty the beaker. Rinse, try another element.

Observations

	Ca	Na	K	Mg
Speed of RXN (None, Med. Fast, Very Fast)				
Was additional heat needed to begin RXN				
Was a gas produced? If so, name the gas				
Color of final solution				

Conclusions

1. Did the potassium react? YES / NO
2. What told you it reacted? _____
_____.
3. Should have hydrogen gas been present? YES / NO
4. Why was the test for hydrogen gas inconclusive for this reaction? _____
_____.
5. Based on the physical and chemical properties observed, divide the four elements into two families. Put the members of the more reactive family on the left, and the most active of those two at the bottom.
