

PERIODIC SOLUBILITY LAB

Objective: To compare the solubility of alkali metal salts to alkaline earth metal salts.

Theory: All alkali salts are soluble (ability to dissolve) in water at room temperature. However, as a group, alkaline earth salts do not readily dissolve in water. The difference in solubility is due to the fact that the alkaline earth metals are more strongly bonded to the carbonates (and many other polyatomic ions) than the alkali metals. The force of attraction between the polar water molecules and the alkali metal ions is significant enough to cause solvation. However, the force of attraction between the water and the alkaline earth metal ions is not enough to overcome the attractive forces holding the alkaline earth ions to the carbonate ions.

Materials:

3 small beakers	graduated cylinder
glass stirring rod	Samples of Alkali and Alkaline earth salts
Balance	water

Procedure:

1. Label your beakers: sodium carbonate (Na_2CO_3), potassium carbonate (K_2CO_3), and calcium carbonate (CaCO_3).
2. Fill the beaker with 30 mL of water.
3. Place approximately 1 gram of each of the salts in their appropriate beaker.
4. Stir the contents of the beaker.
5. Make a data chart to record your data after 1 minute, 5 minutes, and 10 minutes.