

# Data Sheet

	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12
Ca <sup>2+</sup> Dilutions												
Calcium ion [Ca <sup>2+</sup> ]												
Hydroxide ion [OH <sup>-</sup> ]												
OH <sup>-</sup> Dilutions												
Calcium ion [Ca <sup>2+</sup> ]												
Hydroxide ion [OH <sup>-</sup> ]												

No ppt = No precipitate formed      ppt = Precipitate formed

## Calcium Ion Serial Dilutions

First well with no precipitation \_\_\_\_\_

Concentration of Ca<sup>2+</sup> \_\_\_\_\_ mol/L

Concentration of OH<sup>-</sup> \_\_\_\_\_ mol/L

$K_{sp}$  [Ca(OH)<sub>2</sub>] = \_\_\_\_\_

## Hydroxide Ion Serial Dilutions

First well with no precipitation \_\_\_\_\_

Concentration of Ca<sup>2+</sup> \_\_\_\_\_ mol/L

Concentration of OH<sup>-</sup> \_\_\_\_\_ mol/L

$K_{sp}$  [Ca(OH)<sub>2</sub>] = \_\_\_\_\_

## Post-Lab Calculations and Questions *(Show work on a separate sheet of paper.)*

1. Calculate the concentration of Ca<sup>2+</sup> ions and OH<sup>-</sup> ions in the first well of the calcium ion dilution series with no precipitate. Using these concentrations, determine the solubility product, the  $K_{sp}$  of calcium hydroxide. Enter these values in the Data Table under Calcium Ion Serial Dilutions.
2. Calculate the concentration of calcium and hydroxide ions in the first well of the hydroxide ion dilution series where there is no precipitate, and again calculate the value of  $K_{sp}$ . Enter these values in the Data Table under Hydroxide Ion Serial Dilutions.
3. How did the values obtained from the two trials compare with each other? Look up the accepted value for the solubility product of calcium hydroxide in a handbook and compare to your values.
4. Does this method give values that are too low or too high? Why?
5. What would make the method more accurate?
6. Would the results be better if the concentrations of the last well where precipitation occurred were averaged with the first well where there was no precipitate? Is there any justification for doing this? Try it!