

Laser Flash Photolysis

Name _____ My pH _____

Attach first order and second order linear plots: Order = _____

Slope _____ \pm _____ units _____

Intercept _____ \pm _____ units _____

If my solution is acidic: k_1 _____ \pm _____ units _____

If my solution is basic: k_{obs} _____ \pm _____ units _____

nonlinear curve fit results (from instrument software):

k_1 or k_{obs} _____ \pm _____ (SDV K) units _____

Class Data:

pH	k_1 or k_{obs} (instrument fit)	$\log k_1$ or $\log k_{obs}$	k_2 using Eq. 12*
13			
11			
10			
7			
6			

* using Eq. 12 directly with $K_a = 6 \times 10^{-10}$ (not from plot).

Attach plot of $\log k_1$ or $\log k_{obs}$ vs. pH

If the basic pH range values follow the expected trend (decreasing k_{obs} with increasing pH)

For the basic pH region:

Slope _____ \pm _____ units _____

Intercept _____ \pm _____ units _____

k_2 from the plot _____ \pm _____ units _____

Transition	Start of absorption band		End of absorption band	
	λ	cm^{-1}	λ	cm^{-1}
First excited state				
Second excited state				
Third excited state if present				
Fourth excited state if present				
Fifth excited state if present				

Attach Energy Level Diagram