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**POST-LAB REPORT #9**

**KINETICS I: DETERMINATION OF A RATE LAW**

*1. Show calculation of  and  for trial 3.*

**Trial 3: = 20.00 mL**

**= 5.00 mL**

= 20.00 mL + 5.00 mL + 35.00 mL = **60.00 mL**

= = = **0.293 M**

= = = **0.0417 M**

*2. Show calculation of k, the rate constant for trial 3 (assume p = q = 1). What are the units of k?*

**Trial 3:**  = **0.293 M**

= **0.0417 M**

Reaction rate = **0.14542 kPa**

Rate = k k = = = **11.9**

*3. Suppose we were able to measure the amount of oxygen gas formed in units of moles/L, and the rate of formation of oxygen was found to be 0.0125 M/s.*

*a. Using the rate law for this reaction and the units associated with each variable, show what the derived units for the rate law constant would be.*

Formation of oxygen gas: +

Rate = =

Rate law = k[concentration] = k(M) k =

Unit of rate law constant **k =**

*b. What would be the rate of decomposition of the hydrogen peroxide? Explain your answer.*

Rate of decomposition of = 2 x Rate of formation of = 2 x 0.0125 M/s = **0.025 M/s**

Graph of ln(Rate) vs. ln in which the iodide concentration was held constant

Graph of ln(Rate) vs. ln in which the hydrogen peroxide concentration was held constant