Chemical Kinetics – Rate Laws

Errors Checklist

In the Data, you did not:

|  |  |
| --- | --- |
|  | Report all recorded times as seconds |
|  | Pay attention to significant figures (S.F.) in the reporting of Log(mL reactant) and Log(time). The rule for S.F. in logs is: carry the # of S.F. in the value as the # of S.D. in the logarithm |
|  | Calculate the rate constant correctly (Rate of I2 formation is 5x10-4M/time in seconds) |
|  | Write correct/any units for the rate constant |
|  | Round the orders WRT iodide and peroxide to whole numbers |

On the Graphs, you did not:

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|  | Use the WHOLE graphing area for each plot. Do NOT let Excel squish your data into one corner of the area. Adjust X and Y axes so that your data points are spread out. X and Y axes do NOT have to start at zero. |
|  | Include best-fit line with equation and/or goodness of fit (R2) |
|  | Label axes and/or title the graph |
|  | Exclude connect-the-dots lines  |
|  | Exclude vertical and/or horizontal grid lines |

In the Thought Questions, you did not:

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| --- | --- |
|  | Conclude that an increase in [H2O2] will shorten observed time. The rate law shows a 1st order dependence on [H2O2], so the rate will increase with increasing [H2O2], thus shortening observed time. |
|  | Conclude that an increase in [Na2S2O3] will increase observed time. With more thiosulfate, more iodine will be consumed before the thiosulfate is used up, thus delaying the time to the color change indicating presence of excess iodine. |
|  | Conclude that an increase in starch would not affect observed time. Starch is used as an indicator of the presence of excess iodine. The exact amount is not critical; one only needs enough present to bind to iodine, and create the intense blue color. |