EXP. NUMBER	EXPERIMENT/SUBJECT		DATE	
3	The Rate of a Chemical Reaction		▬▬▬▬	
NAME		LAB PARTNER	LOCKER/DESK NO.	COURSE & SECTION NO.
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Prolab

1. $c_1 V_1 = c_2 V_2$

[Br2]

Trial 1: $(0.020 M)(0.005 L) = [Br_2](0.025 L)$

$[Br_2] = 4 \times 10^{-3} M$

Trial 2: $[Br_2] = 8 \times 10^{-3} M$

Trial 3: $[Br_2] = 8 \times 10^{-3} M$

Trial 4: $[Br] = 8 \times 10^{-3} M$

[Acetone]

Trial 1: $(4.0 M)(0.005 L) = [acetone](0.025 L)$

$[Acetone] = 0.8 M$

Trial 2: $[Acetone] = 0.8 M$

Trial 3: $[Acetone] = 0.8 M$

Trial 4: $(4.0 M)(0.01 L) = [Acetone](0.025 L)$

$[Acetone] = 1.6 M$

[HCl]

Trial 1: $(1.0 M)(0.005 L) = [HCl](0.025 L)$

$[HCl] = 0.2 M$

Trial 2: $[HCl] = 0.2 M$

Trial 3: $(1.0)(0.010 L) = [HCl](0.025 L)$

$[HCl] = 0.40 M$

Trial 4: $[HCl] = 0.20 M$

2. $2A + B \rightarrow C + D$
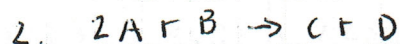
rate $= K[A]^x [B]^y$

TRIAL ONE : $(0, 0.7)$, $(100, 0.4)$

rate $=$ slope $= \dfrac{0.7 - 0.4}{0 - 100} = |-3 \times 10^{-3}|$

TRIAL TWO : $(50, 1.1)$, $(100, 0.8)$

rate $=$ slope $= \dfrac{1.1 - 0.8}{50 - 100} = |-6 \times 10^{-3}|$

TRIAL THREE : $(50, 0.7)$, $(150, 0.4)$

rate $=$ slope $= \dfrac{0.7 - 0.4}{50 - 150} = |-3 \times 10^{-3}|$

using Trial ONE and TWO

$x = \dfrac{\log r_1/r_2}{\log \frac{[A]}{[2A]}} = \dfrac{\log \frac{3 \times 10^{-3}}{6 \times 10^{-3}}}{\log \frac{(0.2)}{(0.4)}} = 2$

using Trial ONE and THREE

$y = \dfrac{\log r_1/r_2}{\log \frac{[A]}{[2A]}} = \dfrac{\log \frac{3 \times 10^{-3}}{3 \times 10^{-3}}}{\log \frac{(0.2)}{(0.40)}} = 0$

so Rate $= K[A]^2$

Rate $= 0.075 [A]^2$

Purpose: The purpose of this ~~reaction~~ experiment is to measure the rate of bromination of acetone, for a reaction catalyzed in an acidic medium.

Procedure: Please refer to the Chem 1AA3 2012 Manual for a detailed procedure. (Experiment- The Rate of a Chemical Reaction).

SIGNATURE	DATE	WITNESS/TA	DATE

NOTE: INSERT DIVIDER UNDER COPY SHEET BEFORE WRITING