

Name: \_\_\_\_\_

Section \_\_\_\_\_

Partner's Name \_\_\_\_\_

Date \_\_\_\_\_

### Activation Energy in Chemical Kinetics Data Sheet

#### Reagent Concentrations

[KI], M \_\_\_\_\_

$\text{Na}_2\text{S}_2\text{O}_3$ , M \_\_\_\_\_

$(\text{NH}_4)_2\text{S}_2\text{O}_8$ , M \_\_\_\_\_

| Flask 1 |                      |  | Flask 2  |                                       |           |
|---------|----------------------|--|--|---------------------------------------|-----------|
| Run     | $V_{\text{KI}}$ , mL | $V_{\text{Na}_2\text{S}_2\text{O}_3}$ , mL | $V_{(\text{NH}_4)_2\text{S}_2\text{O}_8}$ , mL | $V_{(\text{NH}_4)_2\text{SO}_4}$ , mL | Starch    |
| All     | 30.0                 | 15.0                                       | 10.0   | 20.0                                  | 3-5 drops |

| Condition   | Run | Temperature, °C | Time, s |
|-------------|-----|-----------------|---------|
| Uncatalyzed | 1   |                 |         |
|             | 2   |                 |         |
|             | 3   |                 |         |
|             | 4   |                 |         |
|             | 5   |                 |         |
| Catalyzed   | 6   |                 |         |

**Calculation** $[I^-]_0, M$  \_\_\_\_\_ $[S_2O_8^{2-}]_0, M$  \_\_\_\_\_Initial moles  $S_2O_3^{2-}$ , mol \_\_\_\_\_ $\Delta[S_2O_8^{2-}], M$  \_\_\_\_\_

| Condition   | Run | T, K | $T^{-1}, K^{-1}$ | Rate, $M \cdot s^{-1}$ | k, $L \cdot mol^{-1} \cdot s^{-1}$ | $Lnk$ |
|-------------|-----|------|------------------|------------------------|------------------------------------|-------|
| Uncatalyzed | 1   |      |                  |                        |                                    |       |
|             | 2   |      |                  |                        |                                    |       |
|             | 3   |      |                  |                        |                                    |       |
|             | 4   |      |                  |                        |                                    |       |
|             | 5   |      |                  |                        |                                    |       |
| Catalyzed   | 6   |      |                  |                        |                                    |       |

 $E_a, kJ \cdot mol^{-1}$  \_\_\_\_\_ $\frac{R_{cat}}{R_{uncat}}$  \_\_\_\_\_