

Activation Energy

Name: _____

Date: _____

Reagent concentration

KI	0.180	M
Na ₂ S ₂ O ₃	0.0036	M
(NH ₄) ₂ S ₂ O ₈	0.180	M

Species concentration in the 75 mL solution

$$[I^-]_0 = 0.0720 \quad M$$

$$[S_2O_8^{2-}]_0 = 0.024 \quad M$$

$$[S_2O_3^{2-}]_0 = 7.20 \times 10^{-04} \quad M$$

$$\text{Rate} = \frac{[S_2O_3^{2-}]_0}{2t}$$

$$k = \frac{\text{Rate}}{[I^-][S_2O_8^{2-}]}$$

Conditions	Run	T, C	Time, s	T, K	T ⁻¹ , K ⁻¹	Rate, M.s ⁻¹	k, L.mol ⁻¹ .s ⁻¹	Ln k
Room catalyzed	1							<i>Not used to determine the activation energy</i>
room	2							
bath	3	28.0						
bath	4	34.0						
bath	5	40.0						
bath	6	46.0						

Activation energy: E_a = _____ kJ/mol (correct number of sig. fig.)