

Edexcel Chemistry A-Level

Core Practical 14 - Activation energy

Flashcards

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What is activation energy?



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The minimum energy required to break all chemical bonds in the reactants for the reaction to then occur.



What is an example method to determine the activation energy of a reaction?



What is an example method to determine the activation energy of a reaction?

- Repeat for various temperatures 15°C to 75°C (in water baths):
- Add equal volumes of bromide/bromate solution and phenol. Add methyl red indicator.
- Add H_2SO_4 solution and time how long it takes for the solution to go colourless.



How would you analyse this data?



How would you analyse this data?

- Plot a graph of $\ln t$ (on the y-axis) against $1/T$ (on the x-axis)
- The gradient = E_a/R
- Therefore, $E_a = \text{gradient} \times R$
- Where $t = \text{time}$, $T = \text{temperature}$, $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$.



How do you measure the gradient of a line?



How do you measure the gradient of a line?

Gradient = $\frac{\text{Change in } y\text{-coordinate}}{\text{Change in } x\text{-coordinate}}$



Why sometimes is a log scale used?



Why sometimes is a log scale used?

- To show a large range of values without compressing the scale.
- To show percentage change or multiplication factors.

