

Chapter 8: Catalysis in Organic Reactions

Department of Chemistry

1 Catalysis in Organic Chemistry

Catalysts facilitate organic reactions by providing an alternative mechanism with a lower activation energy.

2 Enzyme Catalysis

- Enzymes are biological catalysts exhibiting high specificity and activity.
- Example: Catalase decomposes hydrogen peroxide rapidly.

3 Industrial Catalysis

- **Acid catalysts** in esterification.
- **Metal catalysts** in hydrogenation of alkenes.

4 Effect on Activation Energy

A catalyst provides a pathway with a lower energy barrier, thus increasing the fraction of molecules able to react.

5 Energy Profile Diagram

If included in your LaTeX toolchain:

(Activationenergywithandwithoutcatalyst)

6 Summary

Most large-scale organic syntheses use catalysis for efficiency, selectivity, and cost savings.

References

1. Clayden, J. *Organic Chemistry*.
2. Smith, J.G. *Organic Chemistry*.