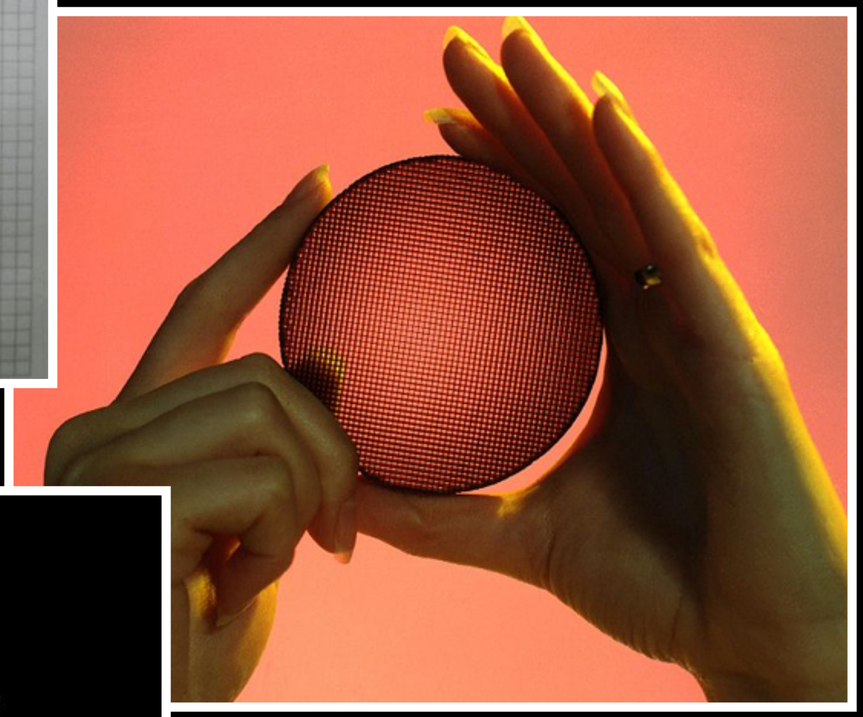
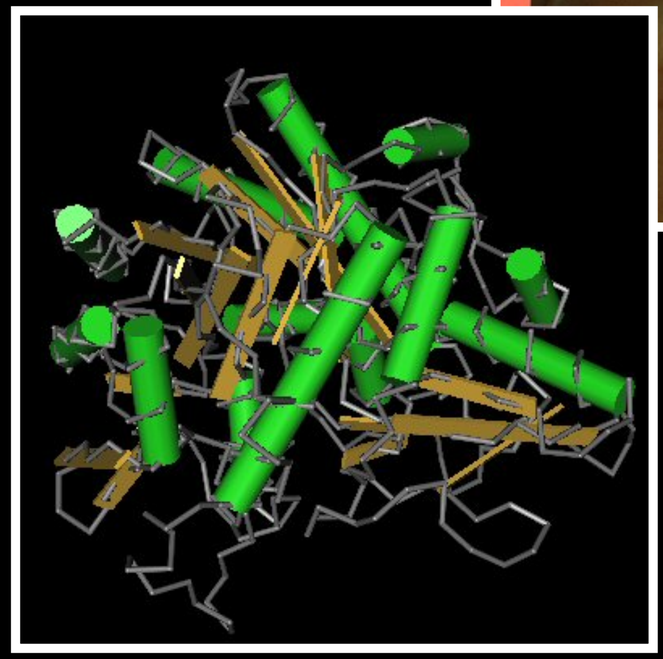
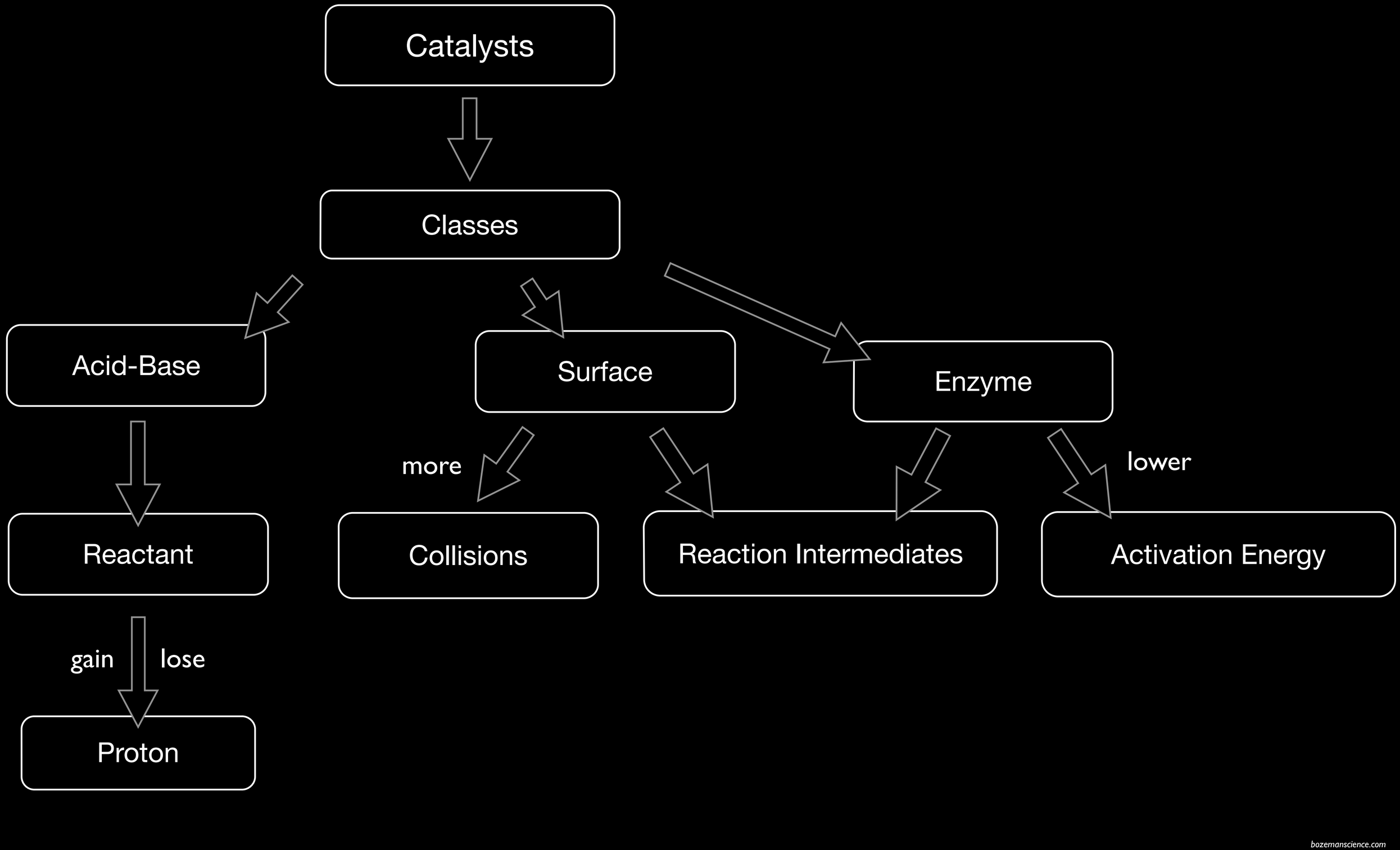
# Catalyst Classes

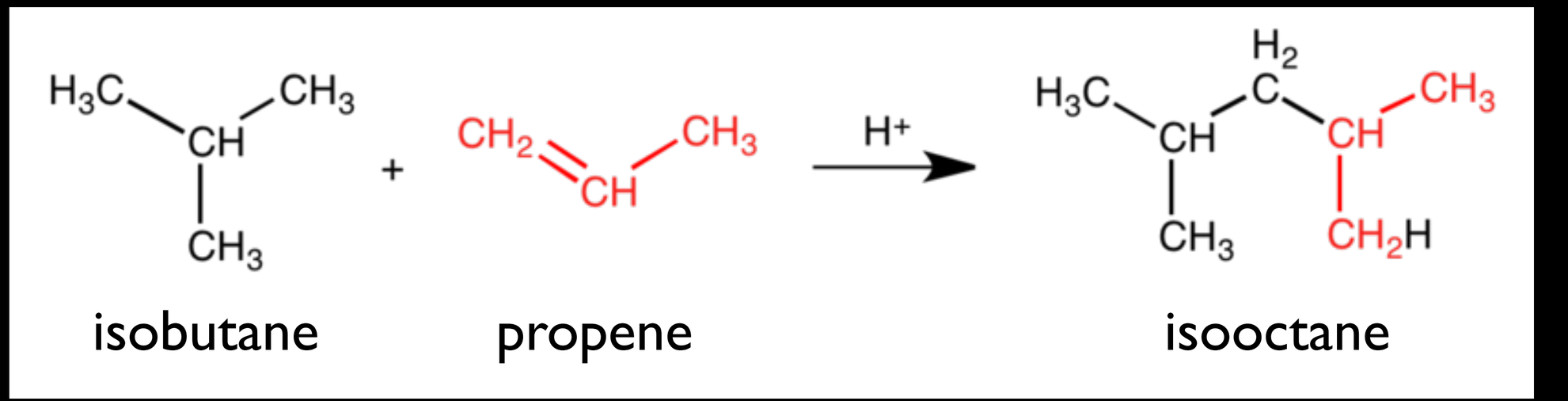





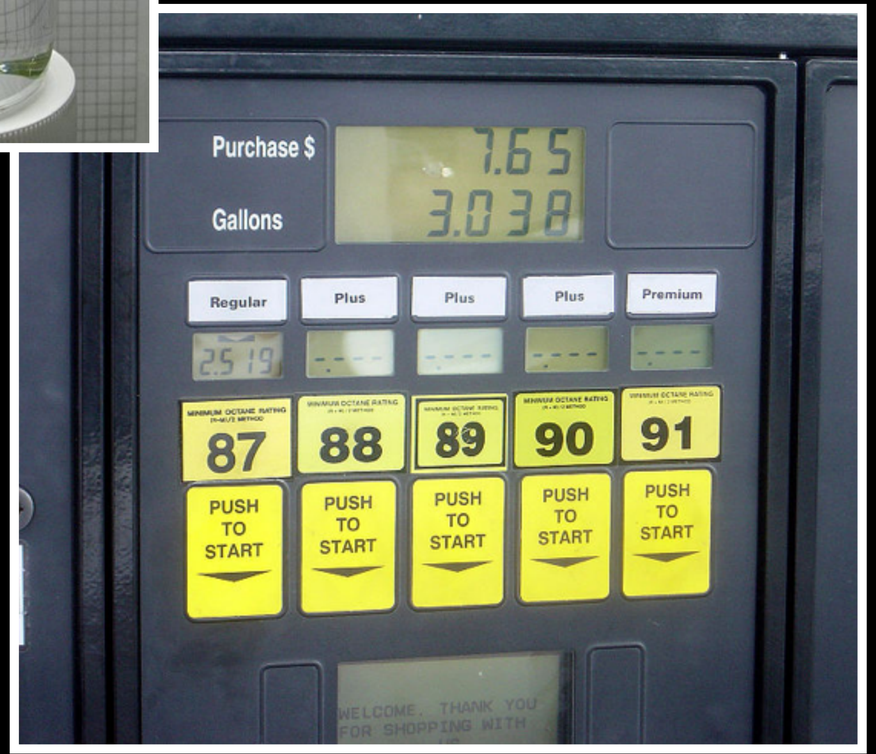
Chemistry Essentials - 045


Catalysts
Classes
Acid-Base
Surface
Enzyme
Reactant
more
Collisions
Reaction Intermediates
lower
Activation Energy
gain
lose
Proton

# Acid-Base Catalyst

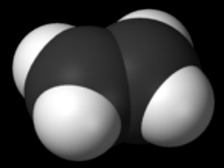



isobutane propene isooctane

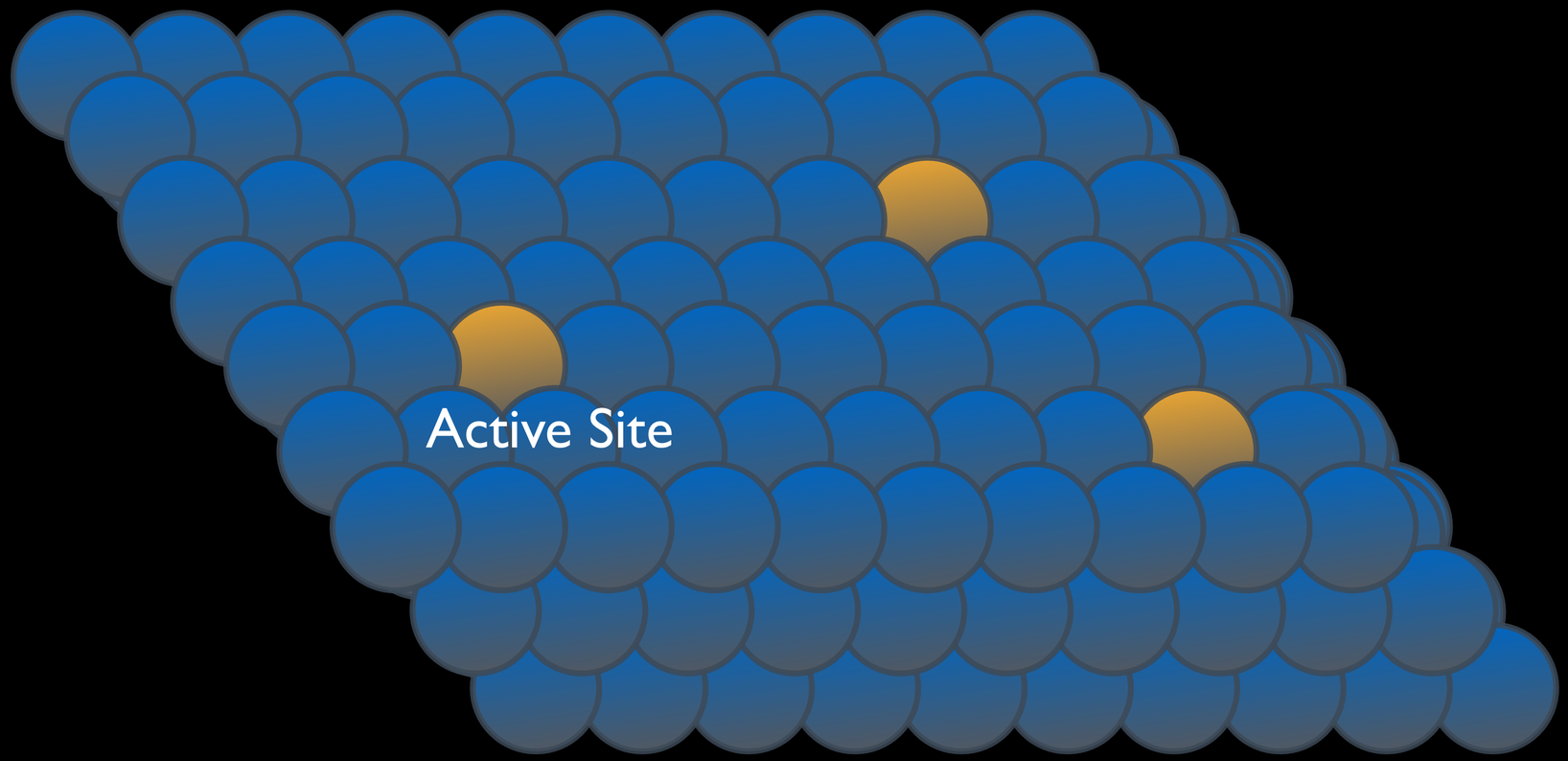


# Surface Catalyst

Hydrogen

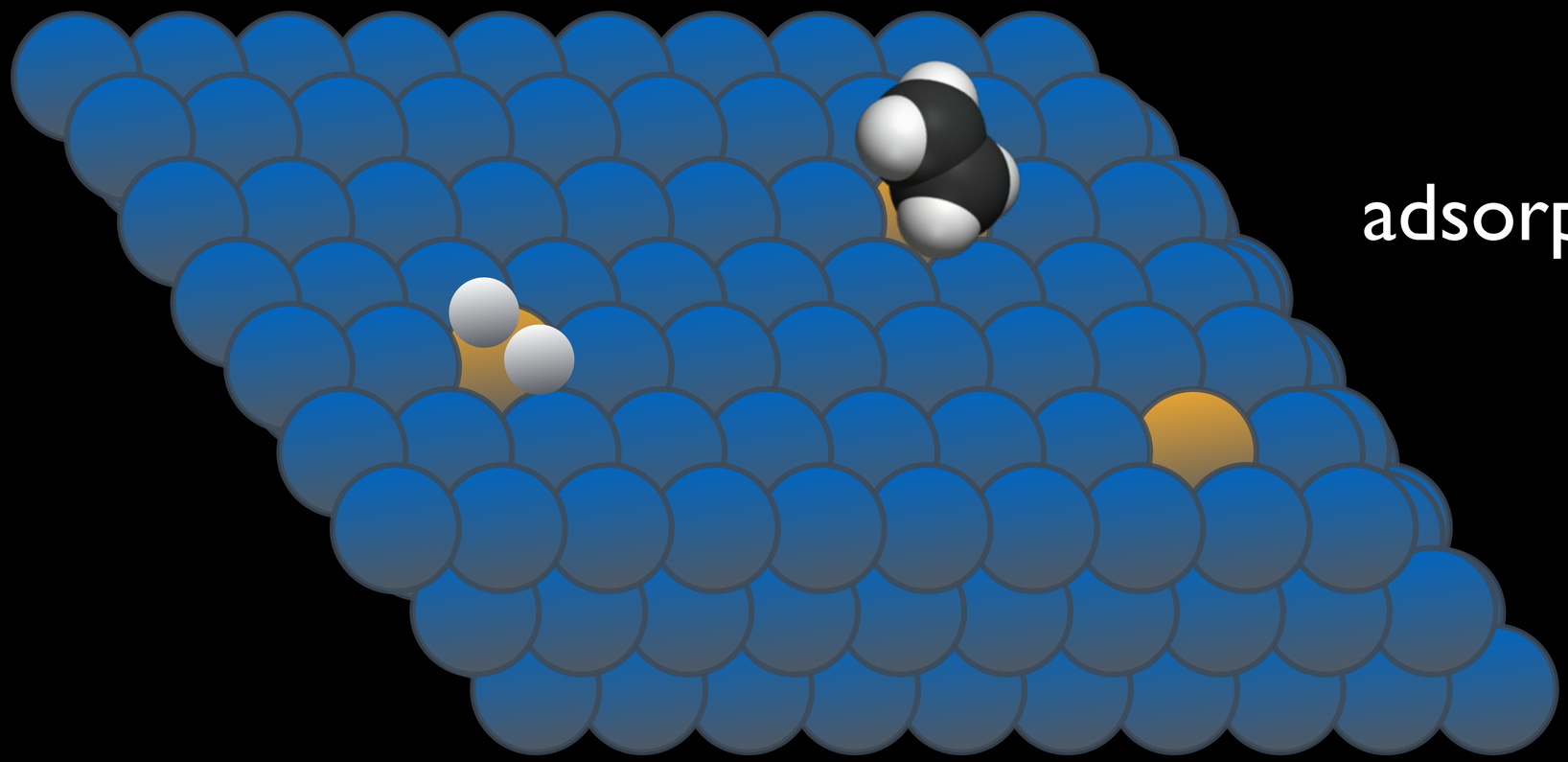


Ethylene




$$C_2H_4 + H_2 \rightarrow C_2H_6$$

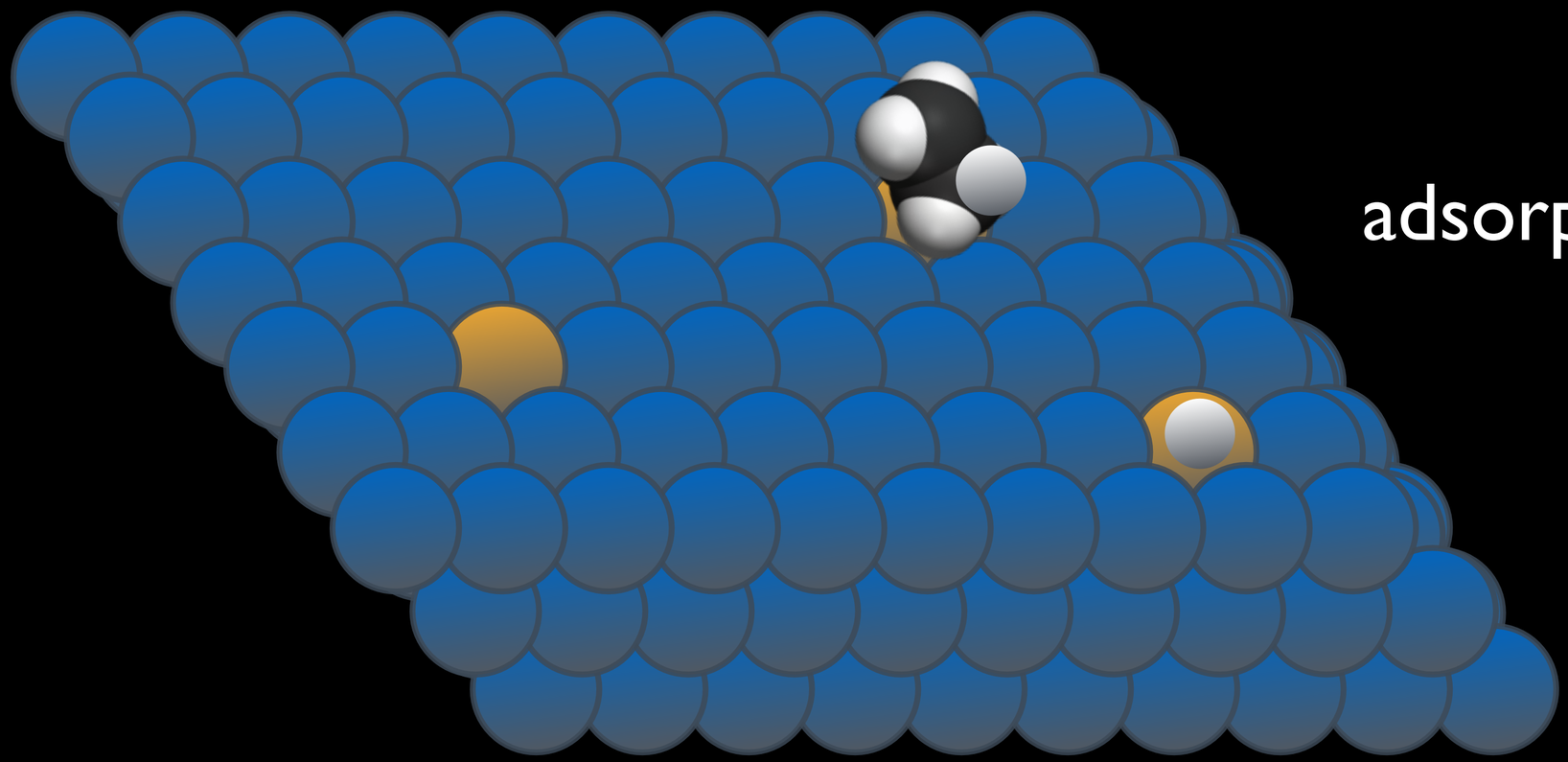
# Surface Catalyst



adsorption

$C_2H_4 + H_2 \rightarrow C_2H_6$

# Surface Catalyst

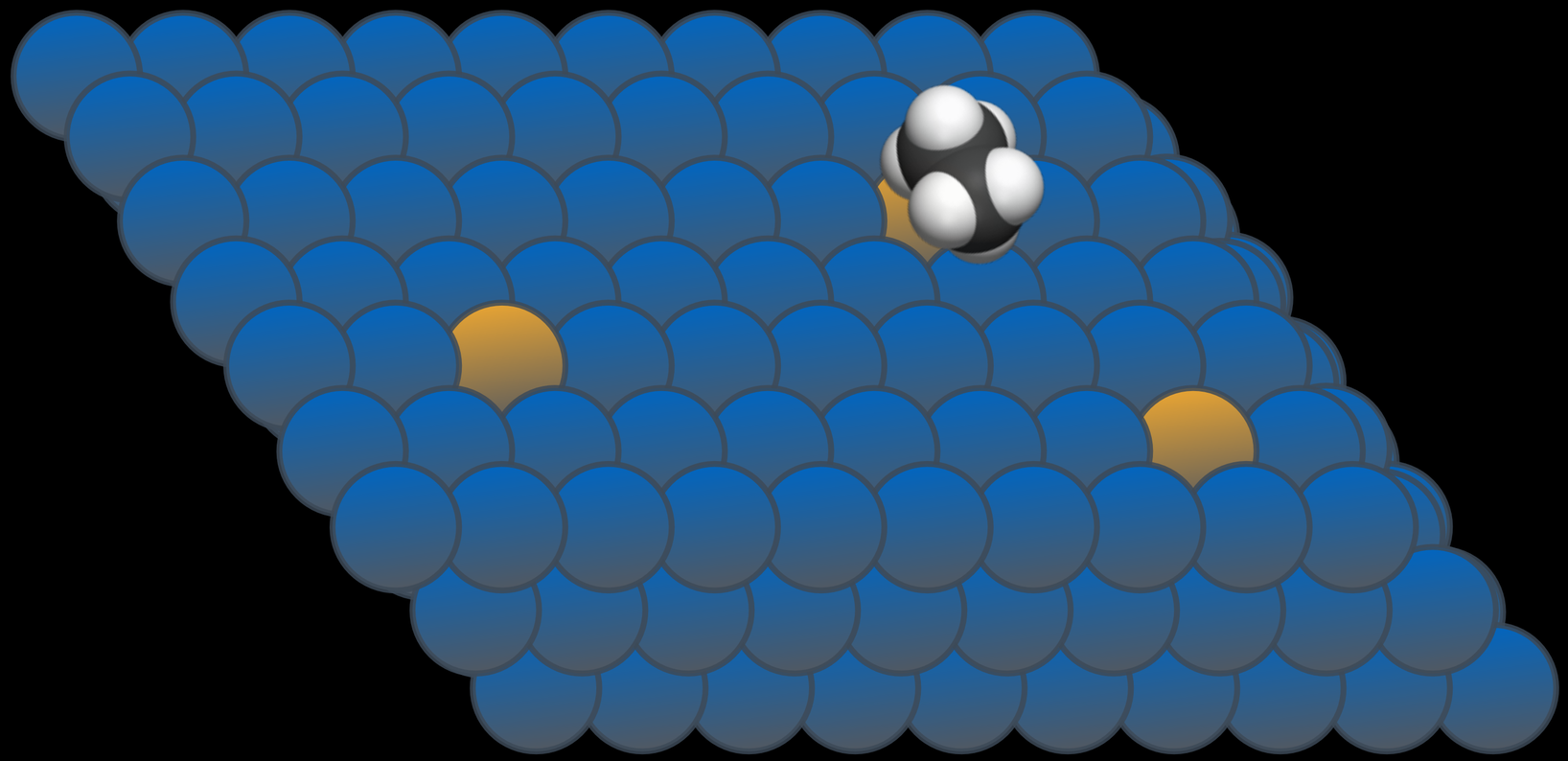


adsorption

$C_2H_4 + H_2 \rightarrow C_2H_6$

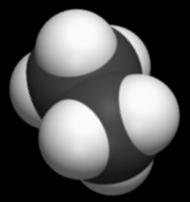
# Surface Catalyst

Ethane

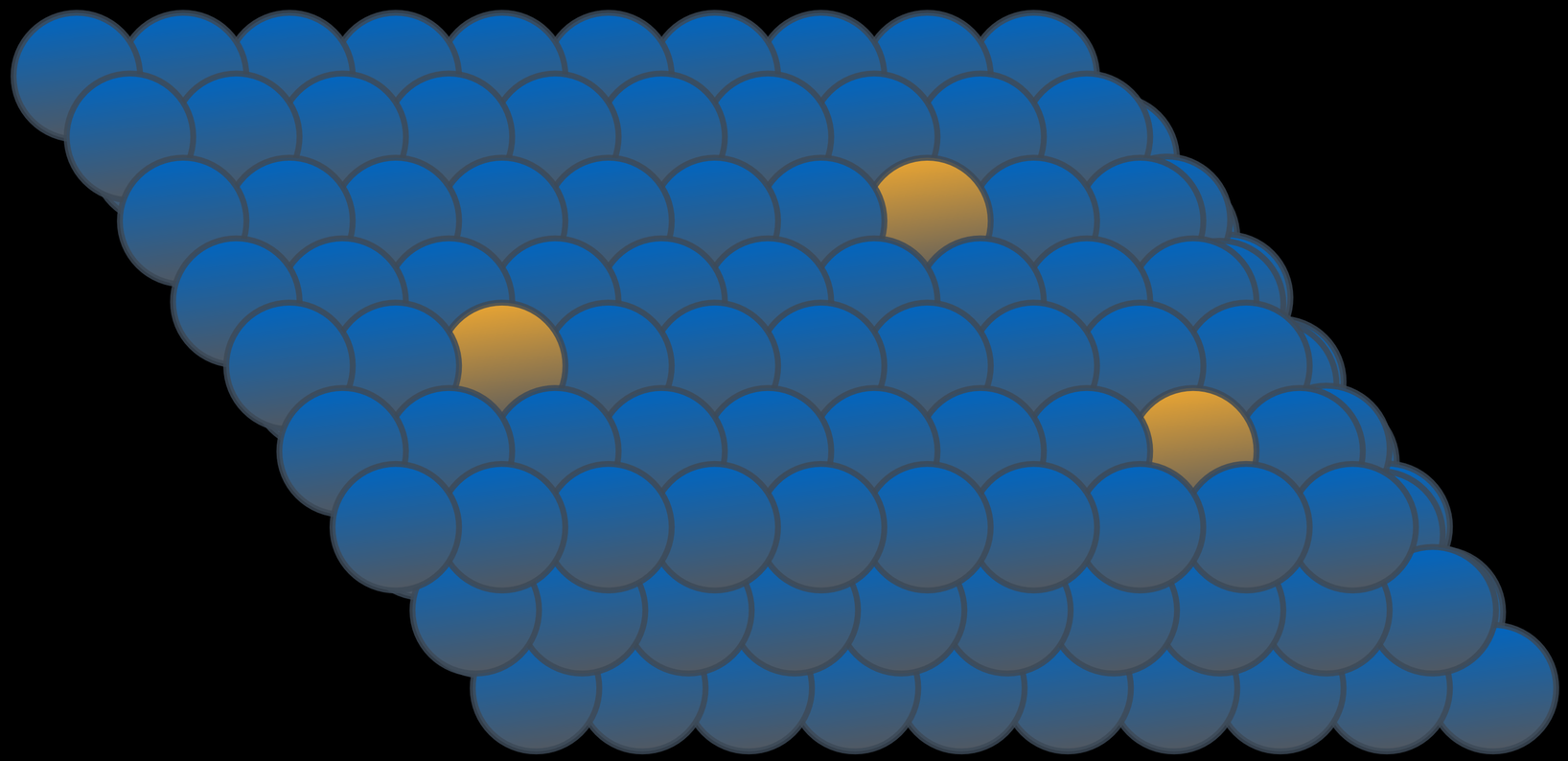


$$C_2H_4 + H_2 \rightarrow C_2H_6$$

# Surface Catalyst

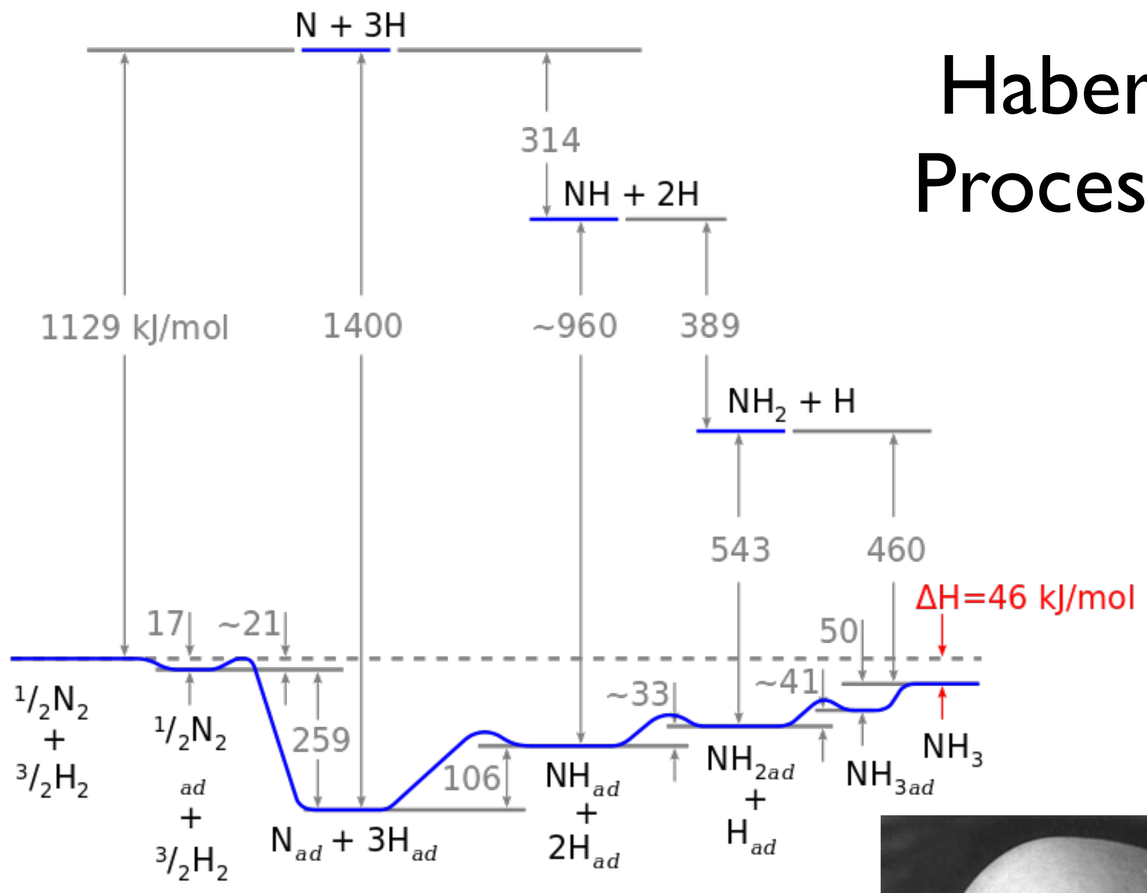


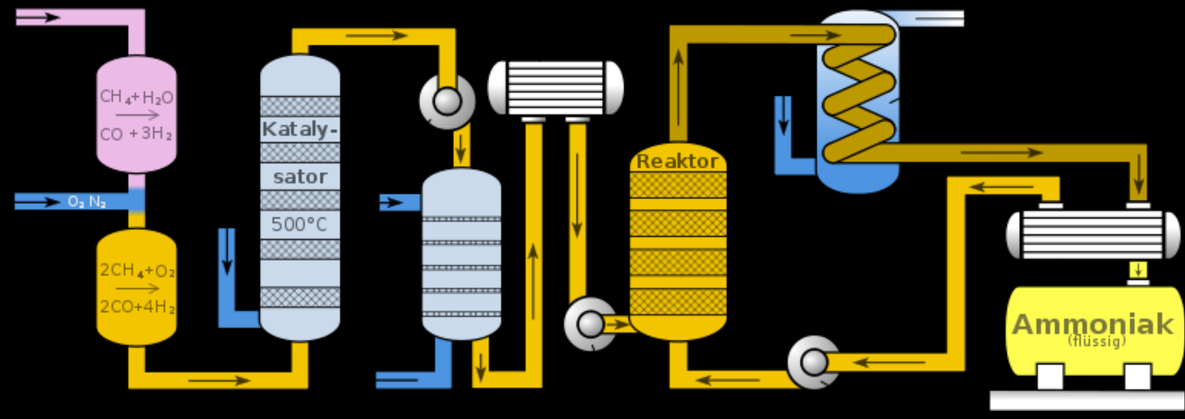
Ethane



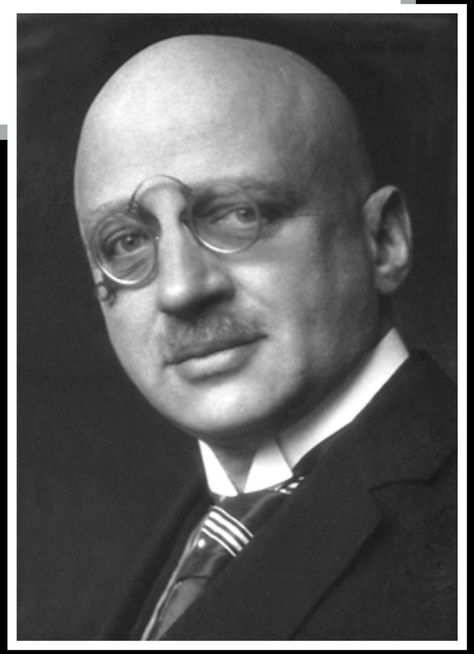
$C_2H_4 + H_2 \rightarrow C_2H_6$

# Haber Process



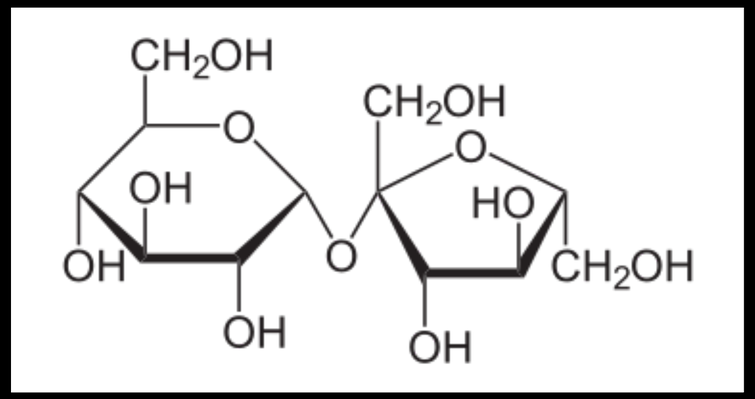




1. $N_2$ (g) → $N_2$ (adsorbed)
2. $N_2$ (adsorbed) → 2 N (adsorbed)
3. $H_2$(g) → $H_2$ (adsorbed)
4. $H_2$ (adsorbed) → 2 H (adsorbed)
5. N (adsorbed) + 3 H(adsorbed) → $NH_3$ (adsorbed)
6. $NH_3$ (adsorbed) → $NH_3$ (g)



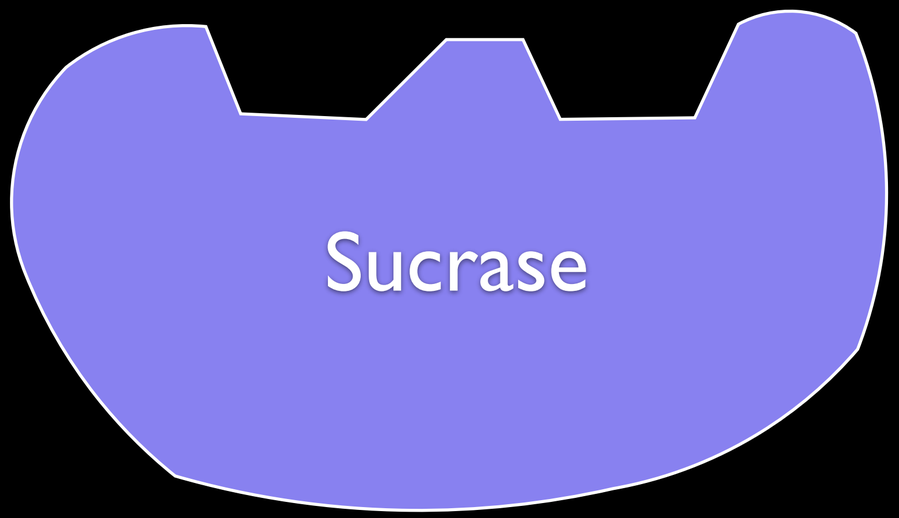
Fritz Haber

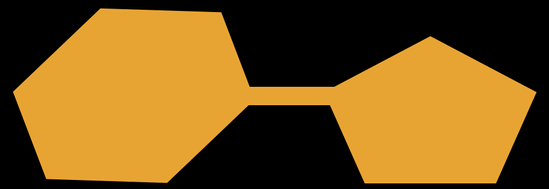
# Enzyme Catalyst




Sucrose

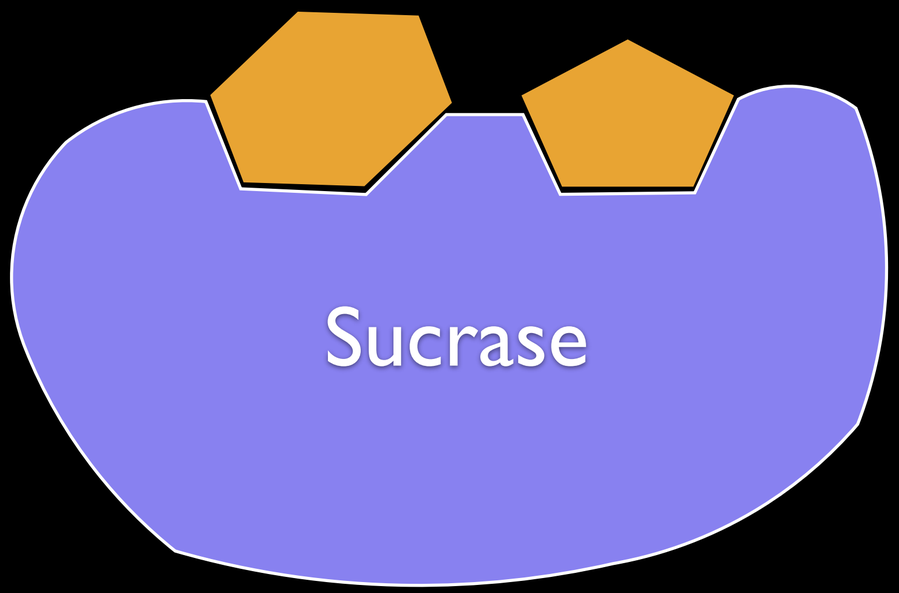
# Enzyme Catalyst



Sucrose

# Enzyme Catalyst




Glucose

Fructose

# Enzyme Catalyst

Sucrase

Glucose

Fructose

# Did you learn?

To explain changes in reactions arising from acid-base, surface and enzyme catalysts.

## Acknowledgements


Andler, Lauri. *English: Macro Photograph of a Pile of Sugar (saccharose)*, December 6, 2006. Photo taken by user. http://commons.wikimedia.org/wiki/File:Sugar_2xmacro.jpg.
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