

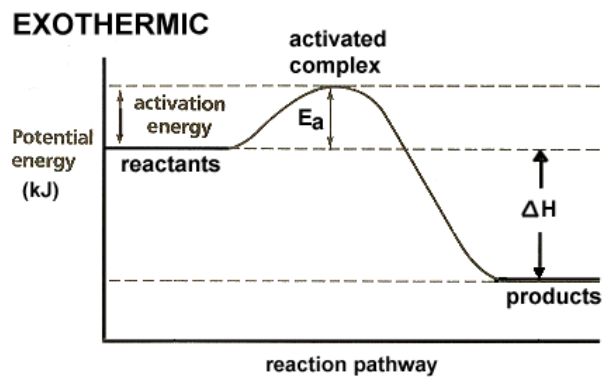
## Exothermic and Endothermic Reactions

### Exothermic Reaction

- A chemical reaction in which energy is released into the environment
  - Combustion (burning)

## Exothermic Reaction

- The products have less energy than the reactants

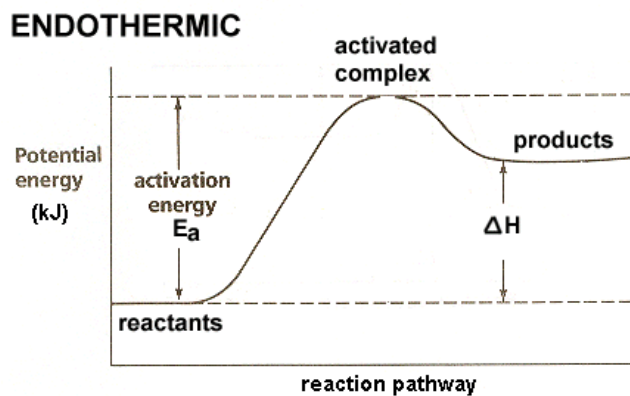


## Endothermic Reaction

- A chemical reaction that absorbs (takes) energy from its surrounding and stores it in the products that form
  - Aluminum chloride dissolved in water

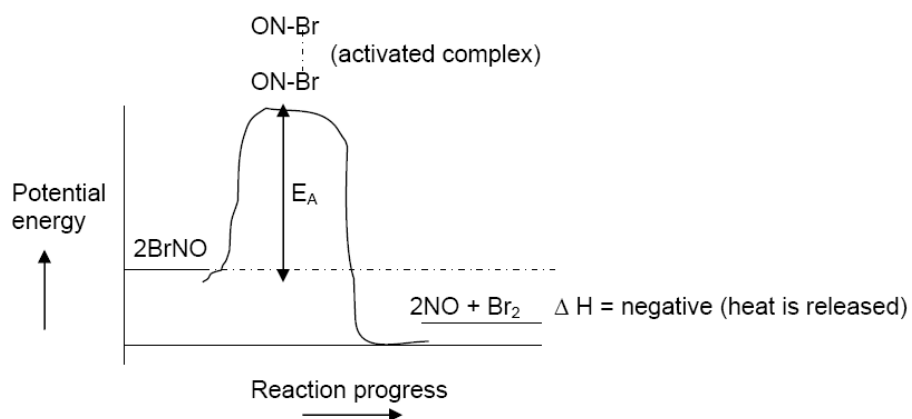
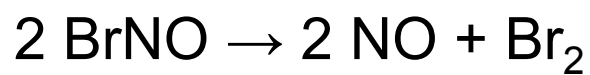
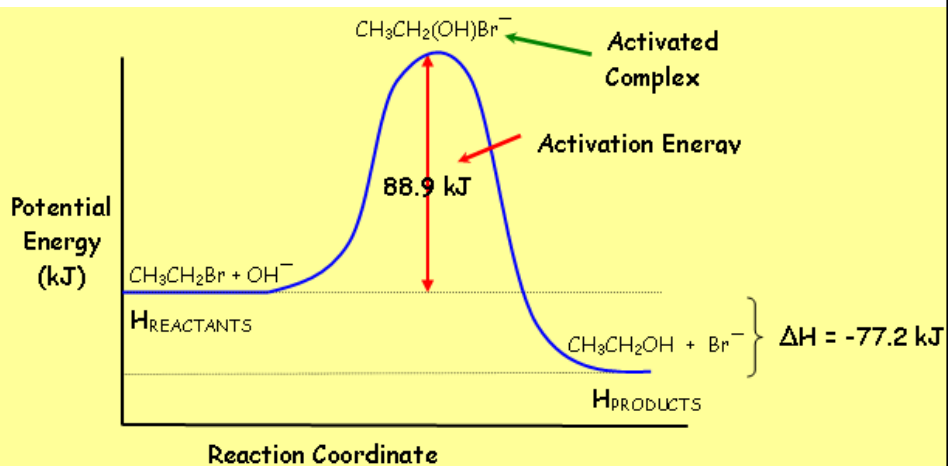
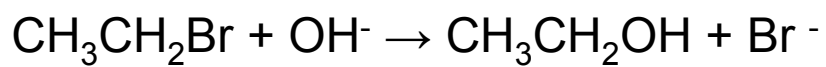
## Endothermic Reaction

- The products have more energy than the reactants



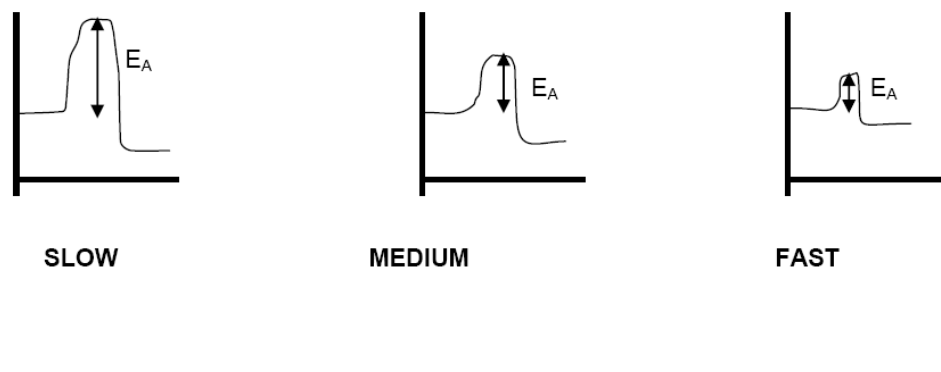
## Enthalpy

- Heat of a chemical reaction
  - How much heat is released (exothermic)
  - How much heat is absorbed (endothermic)



## Relative Rates

- We can use potential energy diagrams to describe if a reaction is fast or slow



## Potential Energy Diagram of a Catalyst Added in a Reaction

