

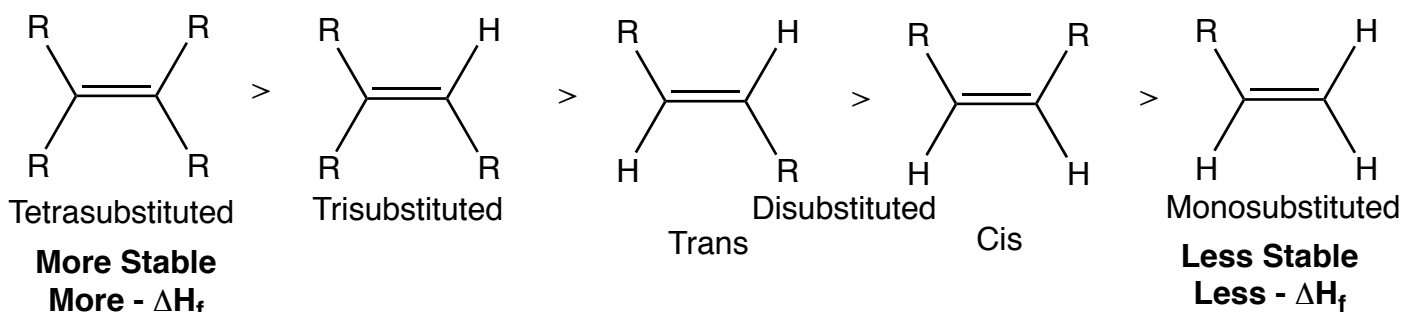
Alkene and Carbocation Stability



Alkene Stability

General Rules:

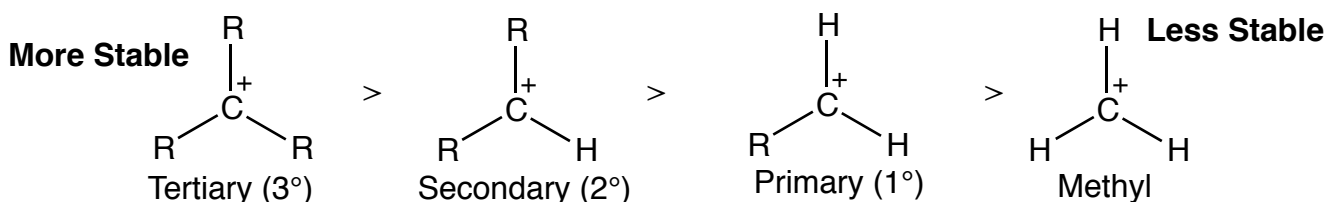
- More substituted alkenes are more stable
- Trans alkenes are more stable than cis alkenes
- The more stable an alkene, the more exothermic the ΔH_f



Carbocation Stability

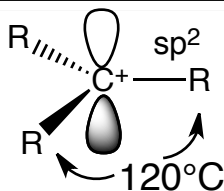
Basic Rules:

- More substituted carbocations are more stable

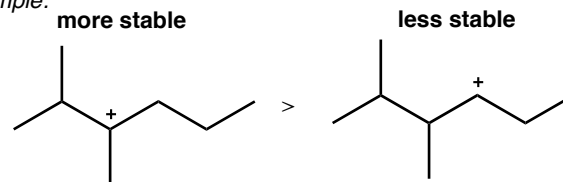


Anatomy of a carbocation:

- sp^2 hybridized
- trigonal planar
- empty p-orbital



Example:

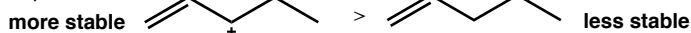


A little more advanced:

Carbocations can be stabilized by adjacent π systems or adjacent heteroatoms with lone pair electrons

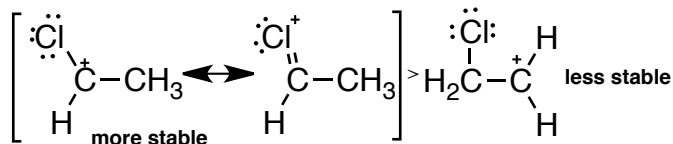
- Carbocations are stabilized by an adjacent C-C π systems

Example:



- Carbocations are stabilized by a heteroatom due to resonance

Example:



expanded cation stability scale

