Organometallic reactions

R. H. Crabtree: The organometallic chemistry of the transition metals

Pages 207 - 234









Reactivity of coordinated ligands Basic premise about metal-catalyzed reactions: Reactions happen in the coordination sphere of the metal Reactants (substrates) come in, react, and leave again Binding or dissociation of a ligand is often the slow, rate-determining step This premise is not always correct, but it applies in the vast majority of cases. Notable exceptions: Electron-transfer reactions Activation of a single substrate for external attack peroxy-acids for olefin epoxidation CO and olefins for nucleophilic attack































What did you learn today?

- Overview of reaction-types in organometallics
 - ligand reactivity
 - insertion/β-elimination (5th lecture)
 - OA-RE (6th lecture)
 - σ -bond metathesis (7th lecture)
 - redox processes
- · Detailed view of ligand reactivity
 - Ligand substitution
 - Dissociative
 - Associative
 - Redox promoted
 - Photochemically promoted
 - Ligand reactivity
 - · Electrophilic attack/abstraction vs. electrophilic attack at the metal
 - Nucleophilic attack/abstraction/addition (rules)
 - Wacker process, alkyne hydration, addition to CO