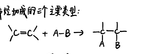
Alkene

2020年4月13 星期四 15:02

烯烃加成的三大主要类型：

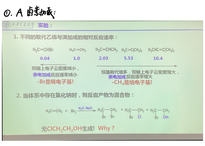


① 亲电加成：$\overset{\delta^+}{A}-\overset{\delta^-}{B} \longrightarrow A^+ + B^-$（卡正）

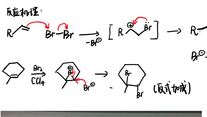
② 自由基加成：$A-B \longrightarrow A\cdot + B\cdot$（均裂）

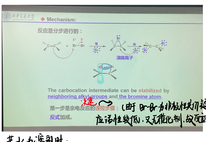
③ 催化加氢(氢化)：$A-B = H_2$

①. A 亲电加成：

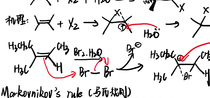


反应机理：

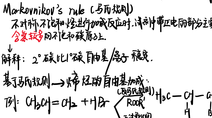




若水参与时：



物理：



Markovnikov's rule（马氏规则）

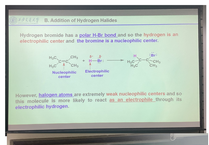
不对称的烯烃加成时，氢原子加在氢原子较多的碳上

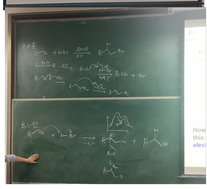
含氢较多的碳原子上。

解释：2°碳比1°碳更稳定。

基于马氏规则 → 碳正离子自由基加成：

例：$CH_2=CH_2 + HBr$

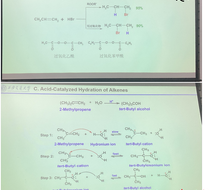




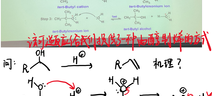
机理解释：

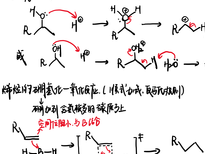
马氏规则（马尔科夫）

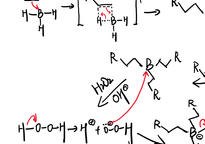
反马氏规则（自由基型）



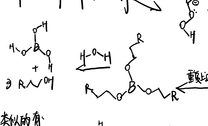
加例



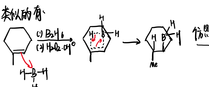




问：



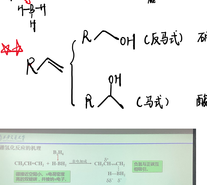
或

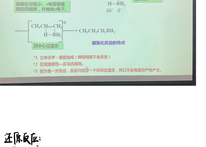


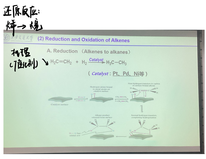
烯烃的硼氢化-氧化反应：（顺式，加成，取向反马氏）

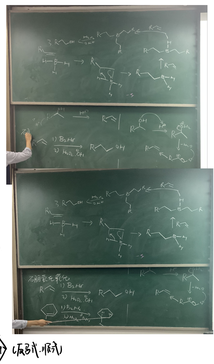
硼的2对空轨道的缺原子上

空轨道的缺 b 的缺

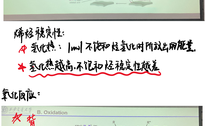




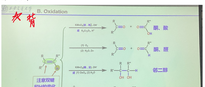




类似的有：



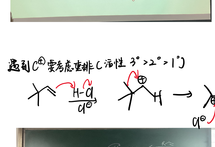
特殊：



① B_2H_6
② H_2O_2, OH^-

(反马式) 不明显化学式

(马式) 酸性条件下会 H_2O, H^+



正氢氧化：

烯 → 烷

烯烃稳定性：

氢化热：1mol 不饱和烃氢化时释放出的能量

氢化热越高，不饱和烃稳定性越差

氧化反应：

亲电加成：