

烷烃

Alkanes 烷
Alkenes 烯
Alkynes 炔

Halide. 卤代烷

All open-chain Alkanes fit C_nH_{2n+2}

Methane CH_4
Ethane C_2H_6
Propane C_3H_8
Butane C_4H_{10}
 $\sim$ n-Butane 正
 γ iso-Butane 异

三类异构 { 构造 constitutional 骨架不同
构型 configurational 顺反, 对映.
构象 conformational

IUPC 命名法

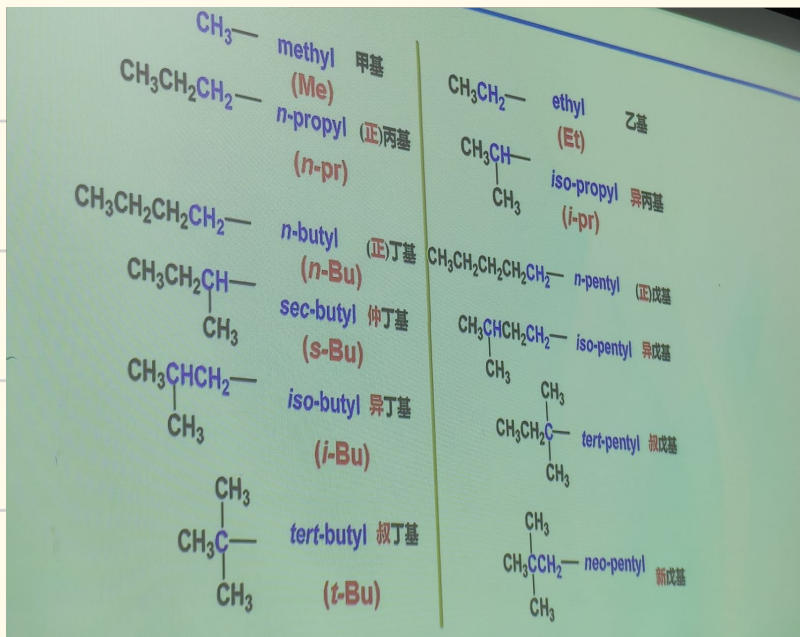
1	Meth-		6	Hex-
2	Eth-	di-	7	Hept-
3	Prop-	tri-	8	Oct-
4	But-	tetra-	9	Non-
5	Pent-	penta-	10	Dec-

n- 正

sec- 仲

tert- 叔

参与排序 { iso- 异
neo- 新



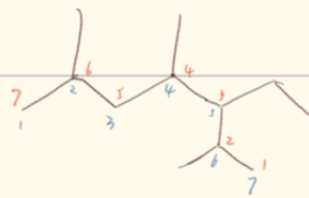
prefix + root + Suffix

1) 找 最长 (碳链)

2) 编号 最多 (取代基数目)

最少 (取代基之和) (最小序列原则)

字母排序

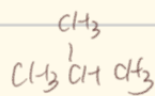


1) Heptane

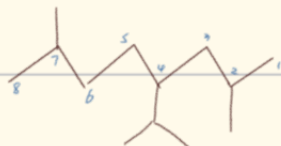
2) $2+3+4+6 < 2+4+5+6$

3) 2,4,6 trimethyl
3 Ethyl

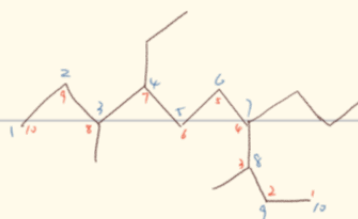
14) 3-Ethyl-2,4,6-trimethyl heptane



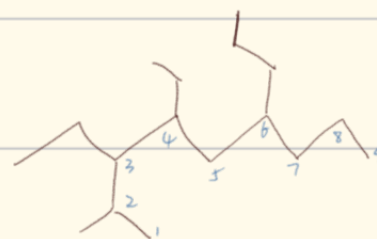
2-methyl propane



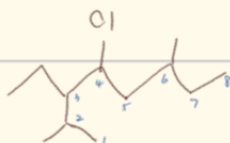
4-isopropyl-2,7-dimethyloctane



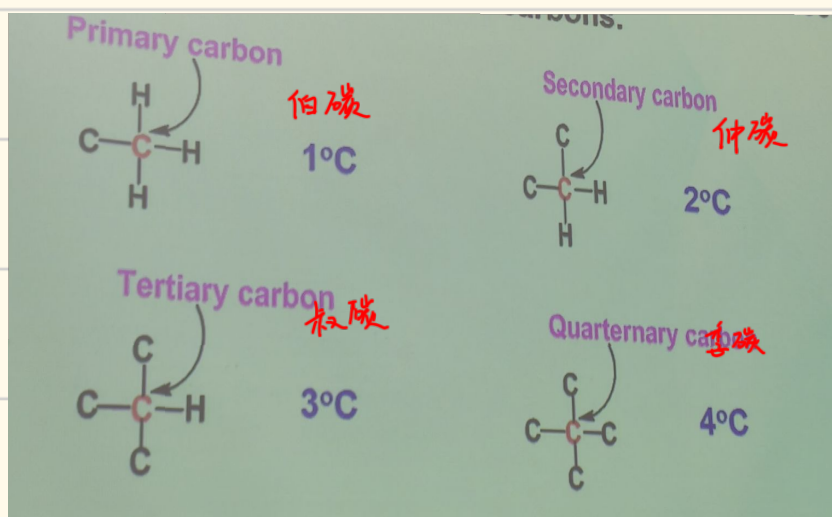
4-ethyl-3,8-dimethyl-7-propyldecane



3,4-diethyl-2-methyl-6-n-propylnonane

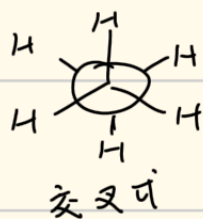


4-chloro-3-ethyl-2,6-dimethyloctane

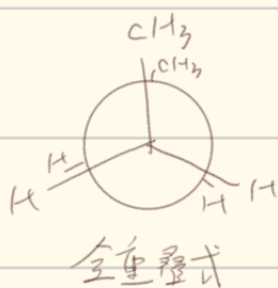
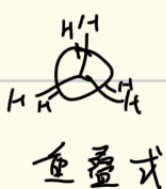


conformational isomer 构象异构

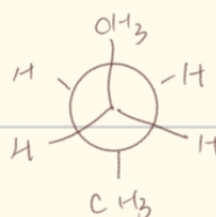
纽曼投影式



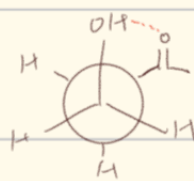
稳定 >



→ 部分重叠式 → 邻位交叉式 →



(最稳定)



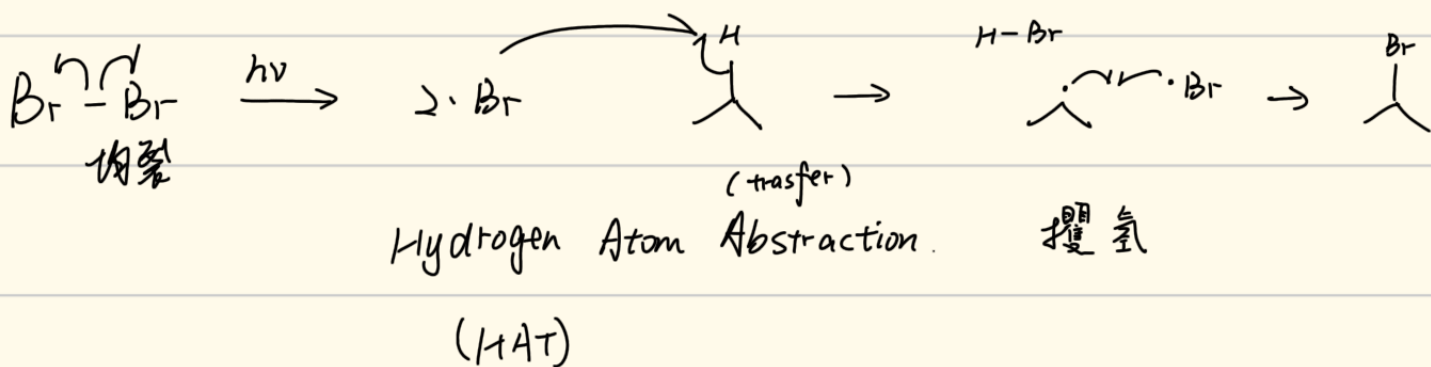
> 对位交叉

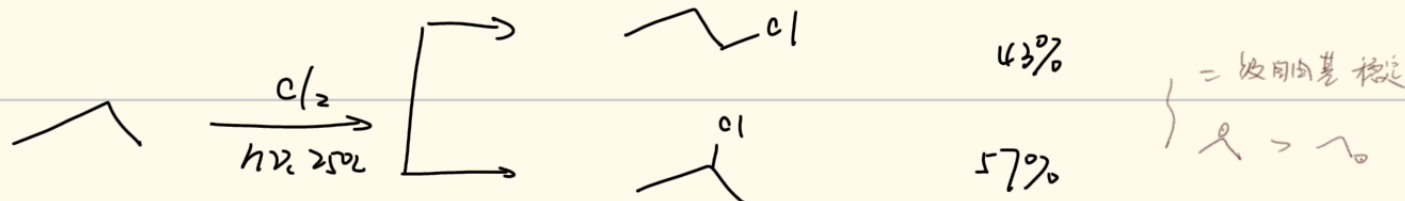
沸点 ↑ 正碳链 ↑ 色散力 ↑

支链 ↑ 沸点 ↓

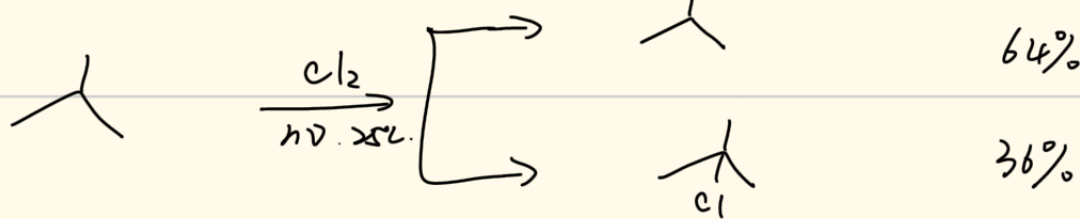
熔点 ↑ C ↑ , 对称性 ↑ 熔点 ↑

反应

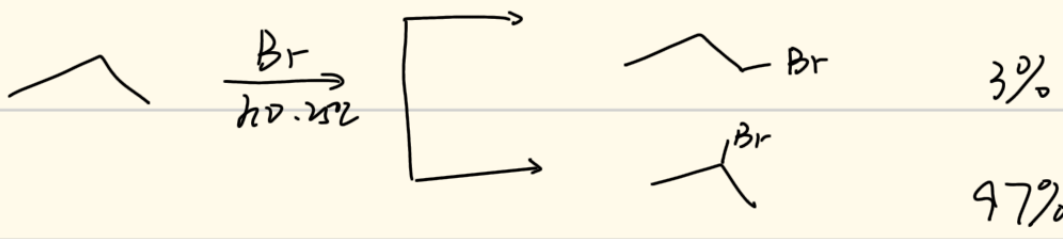




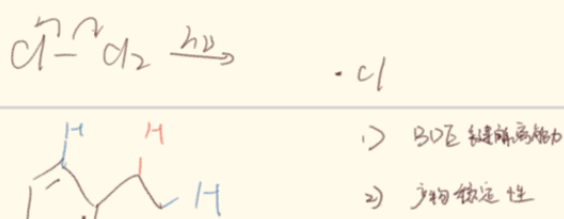
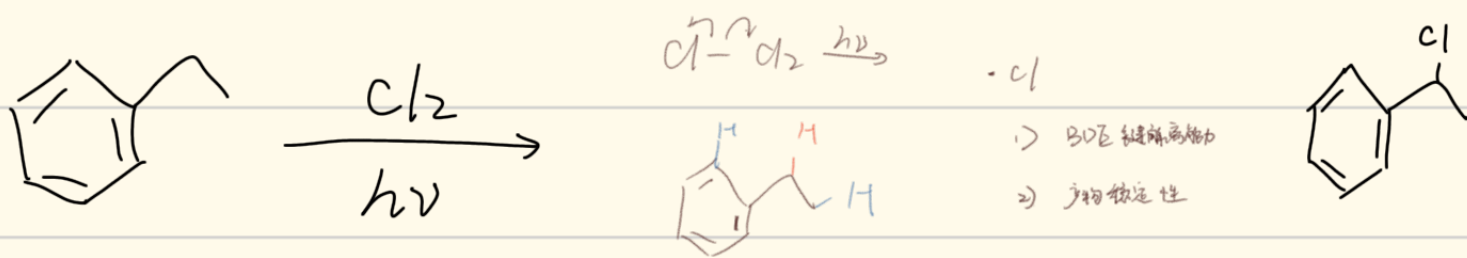
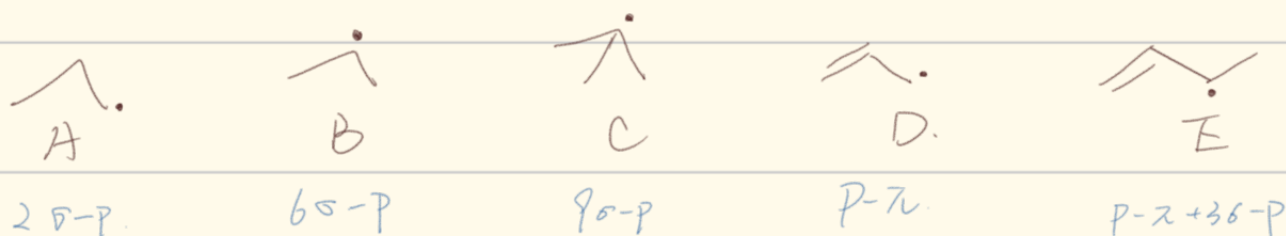
43%
 57% } = 叔自由基稳定
 $\text{叔} > \text{仲}$



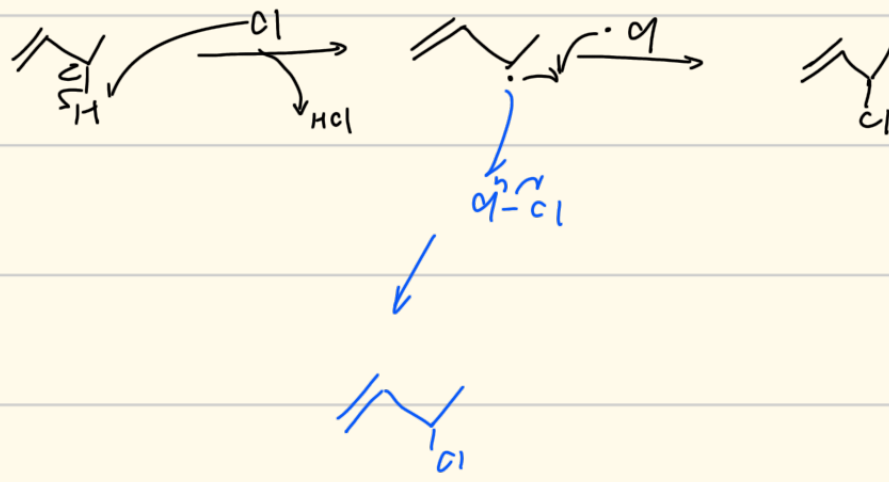
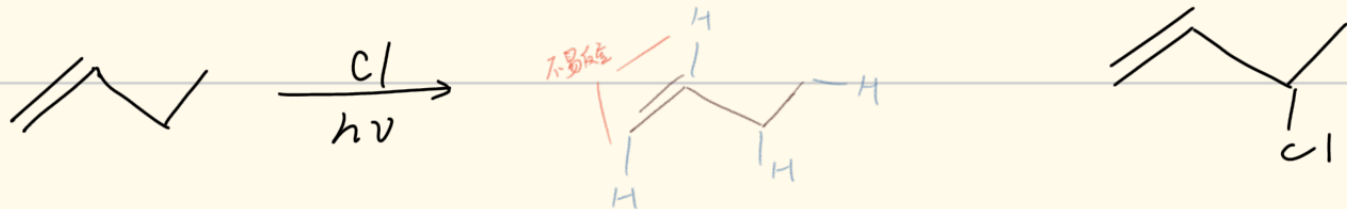
64%
 36% } 概率 9:1
 叔基 $\rightarrow$ 伯基



3%
 97% } Br 比 Cl 选择性更强



1) BDE 键解离能力
 2) 产物稳定性

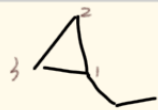


Ph $\rightarrow$ c1ccccc1
 苄位
 高活性 易自由基反应

环烷烃 C_nH_{2n} (= 烯 C_nH_{2n}) $\Rightarrow$ 小环似烯



1 - cyclopropyl butane

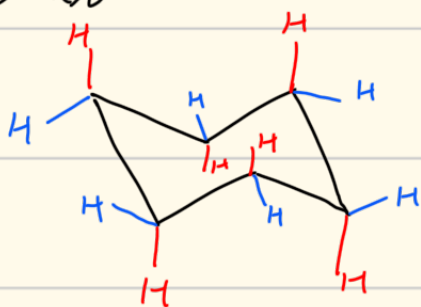


1 - ethyl cyclopropane

环增大，环张力 $\downarrow$

$CH_3 -$ methyl.
 亚甲基
 $-CH_2-$ methylene.
 次甲基
 $-C-$

环己烷

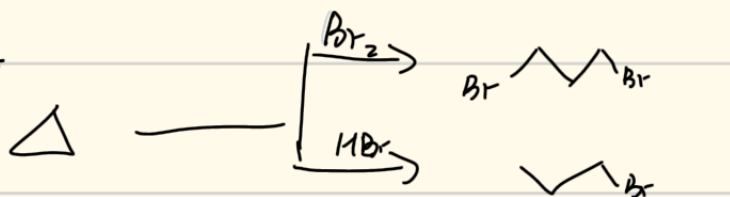


直立键

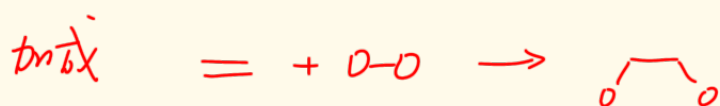
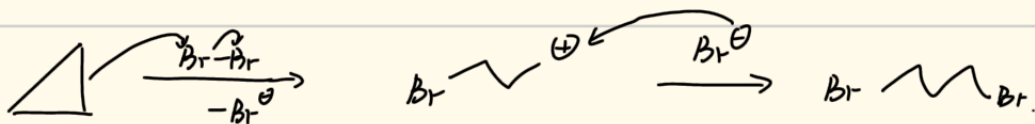
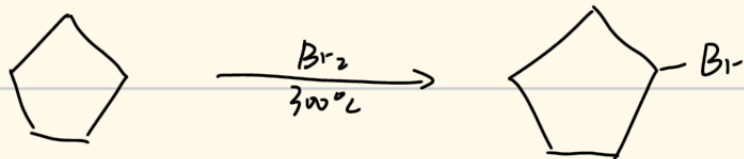
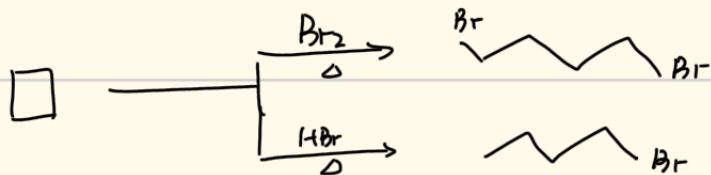
平伏键

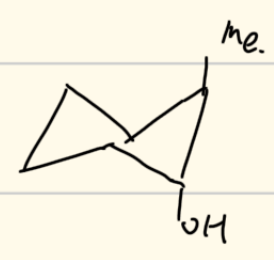
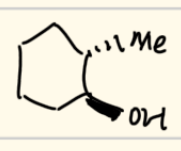
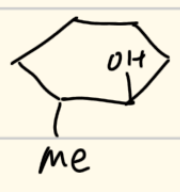
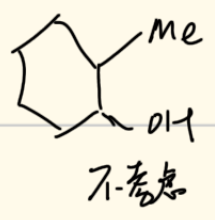
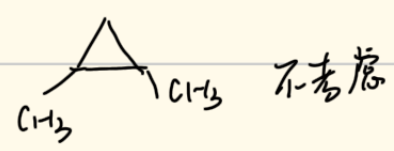
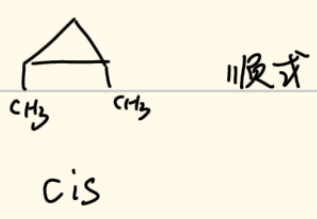
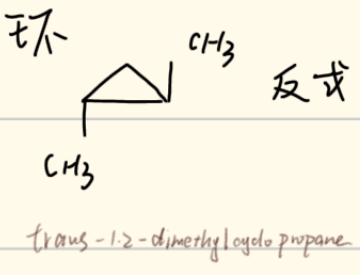
大官能团尽量放平伏键

小环似烯



$\triangle$ $\nearrow$ $\nearrow$ δ
 $+ Br$ 键 $\times$ $\checkmark$ $\checkmark$





trans

烯

