

Epoxidation Of Alkenes, And Epoxides

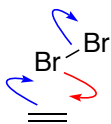
from chapter(s) _____ in the recommended text

A. Introduction

.

B. Reagents And Mechanism

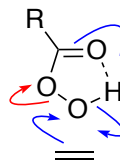
pushing



bromination



*epoxidation
general
X is leaving group*

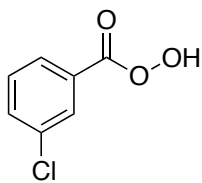


*epoxidation
with peracid*

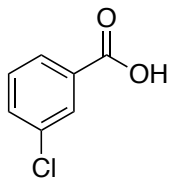
3

pushes

electrophilic



mCPBA



*product after donation
of oxygen*



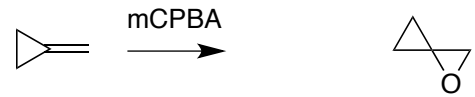
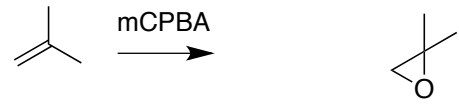
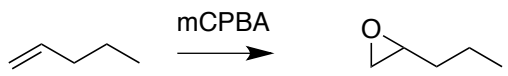
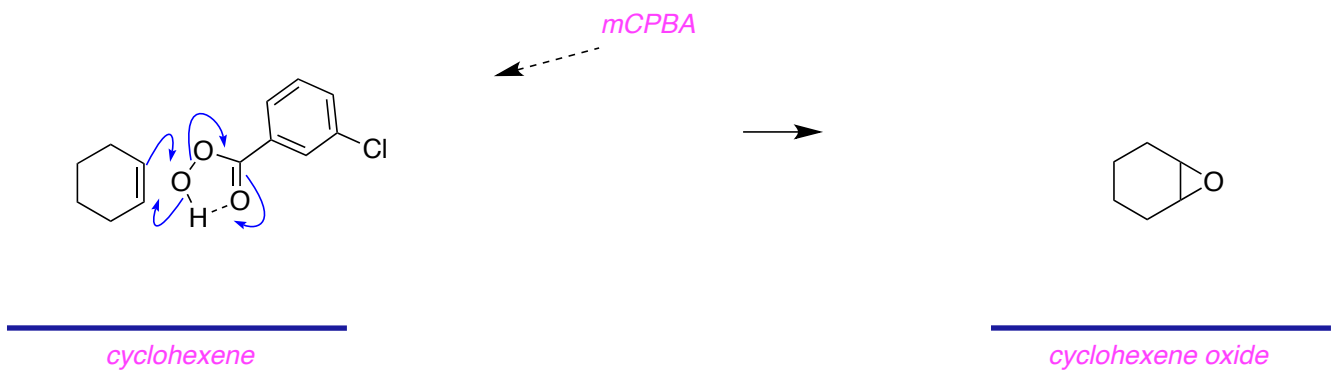
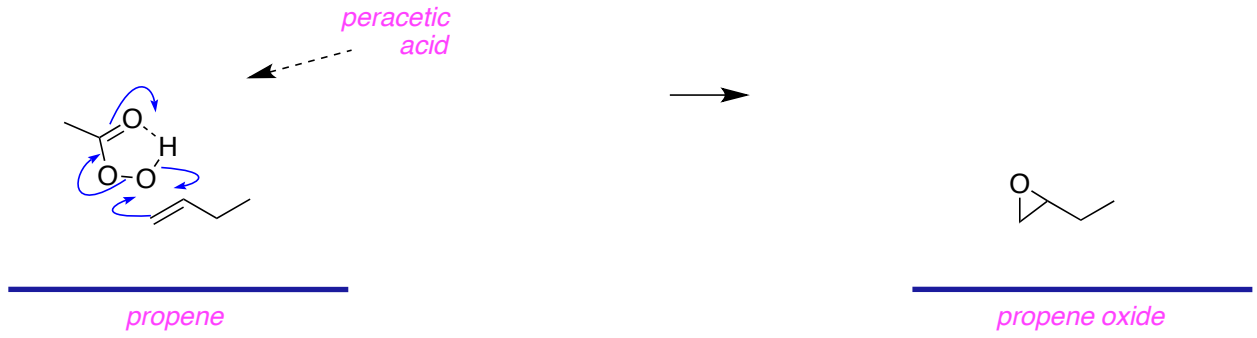
dimethyldioxirane

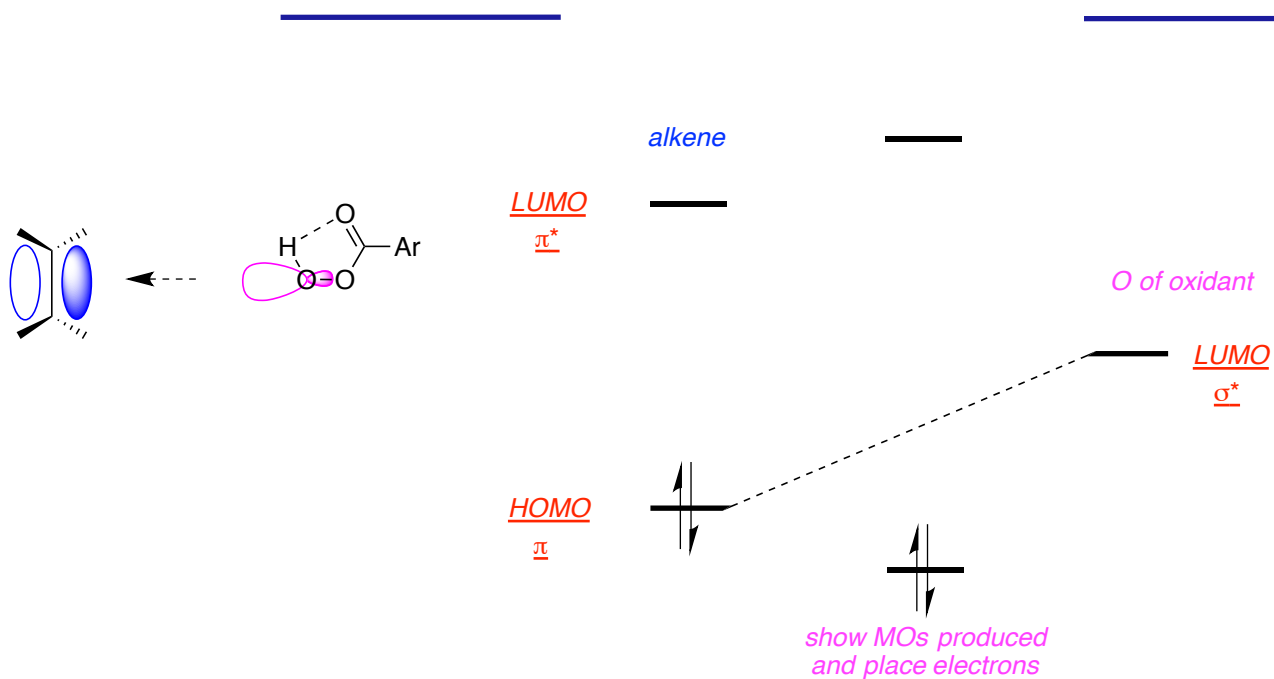
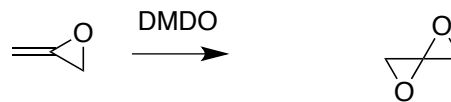
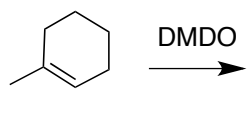


*product after donation
of oxygen*

electrophilic
electrophile.

addition reaction.

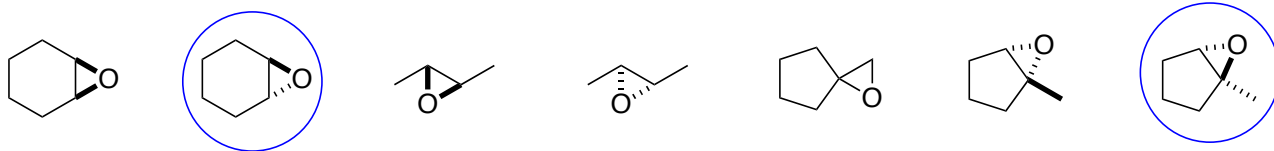




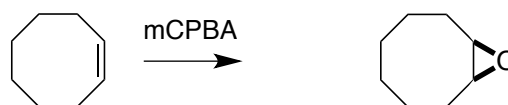
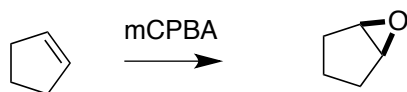
C. Rates Of Epoxidation



D. Stereospecificity

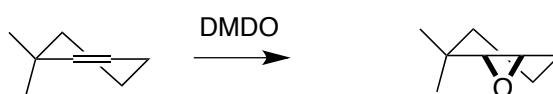
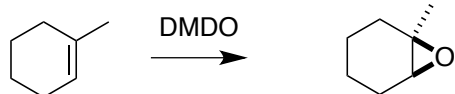


conserved



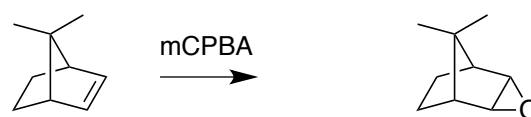
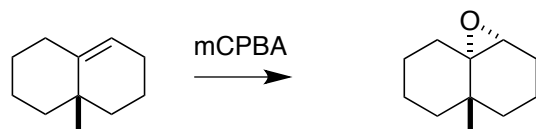
cis

cis



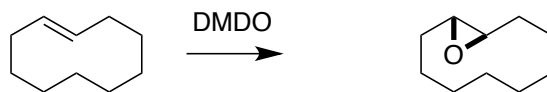
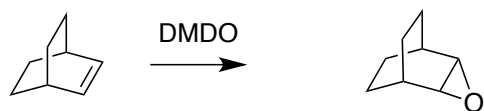
cis

cis



cis

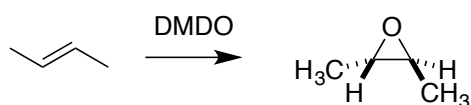
cis
show sterically least hindered product



cis

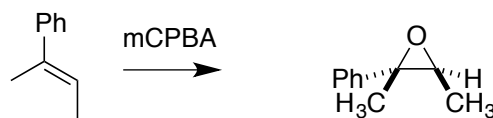
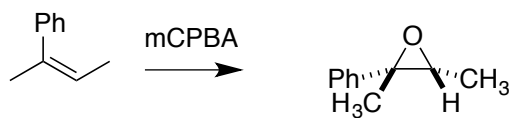
cis

always gives the cis



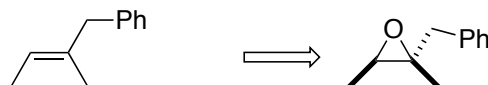
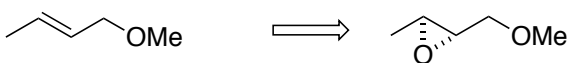
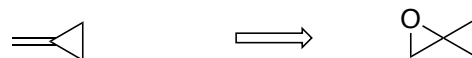
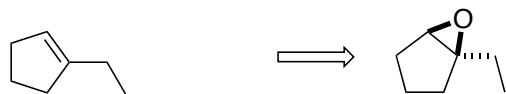
trans

cis



cis

trans

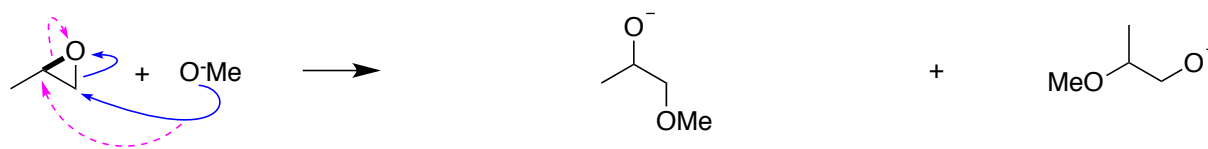


E. Regioselectivity Of Epoxide Ring Opening Reactions

Under Neutral Or Basic Conditions

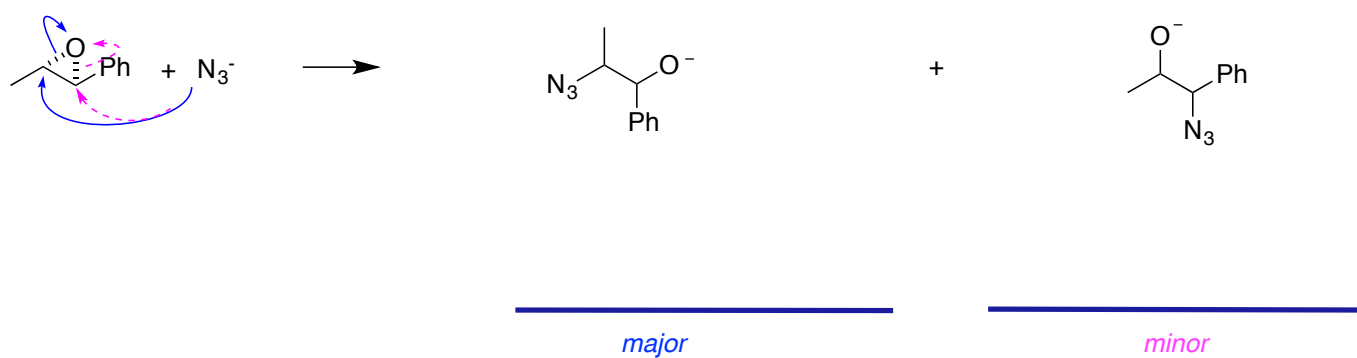
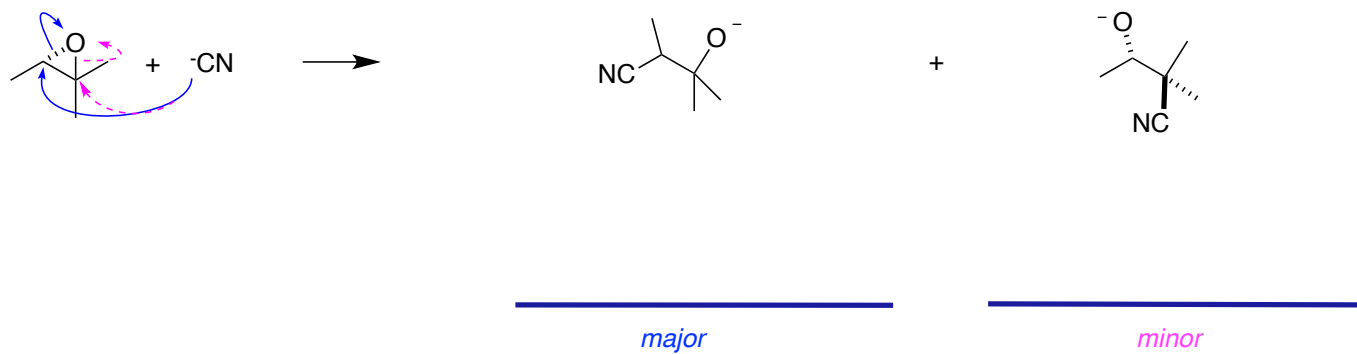
regioisomeric products

steric factors.



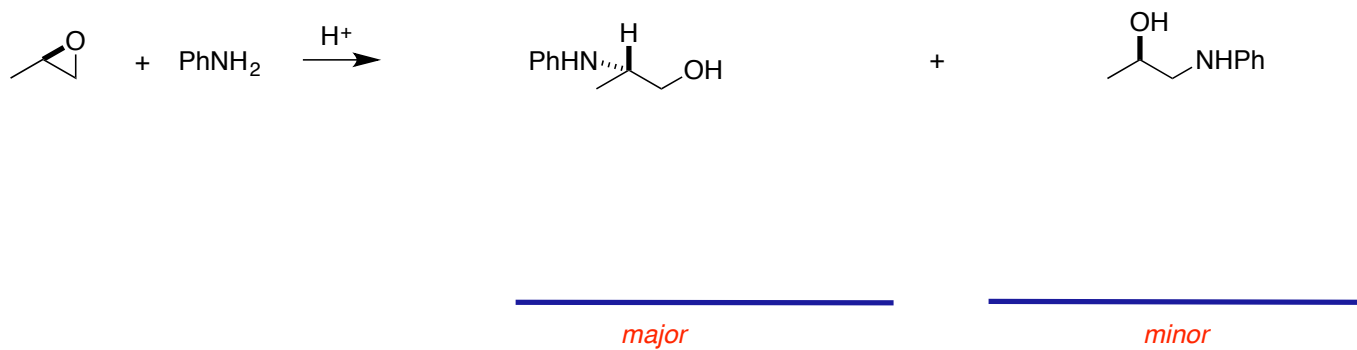
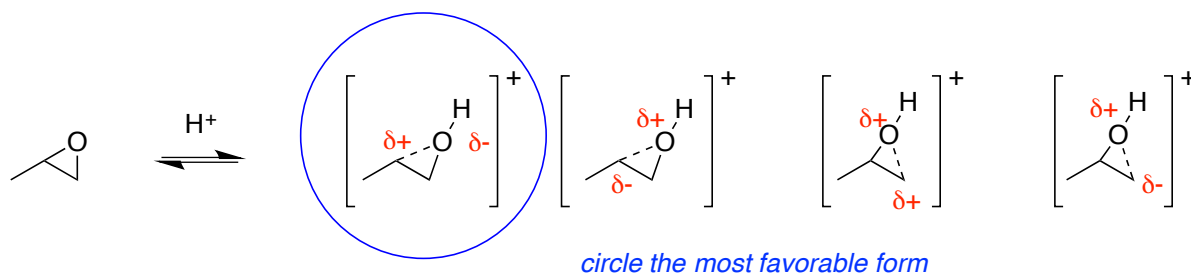
major

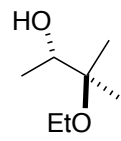
minor



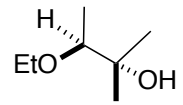
regioselective and not regiospecific.

Under Acidic Conditions

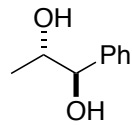
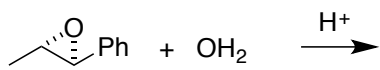




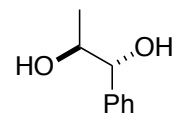
+



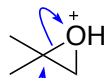
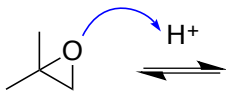
major

minor


+



major

minor

 $\xrightarrow{\text{HOMe}}$
