

Epoxidation Of Alkenes, And Epoxides

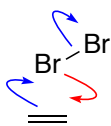
from chapter(s) _____ in the recommended text

A. Introduction

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B. Reagents And Mechanism

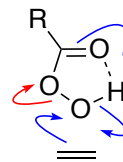
pushing



bromination



epoxidation
general
X is leaving group

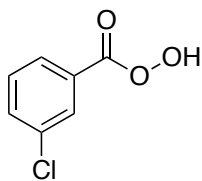


epoxidation
with peracid

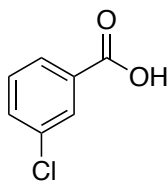
3

pushes

electrophilic



mCPBA



product after donation
of oxygen



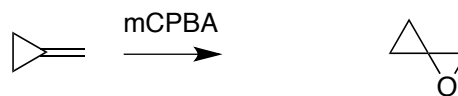
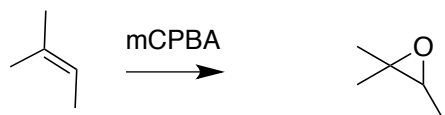
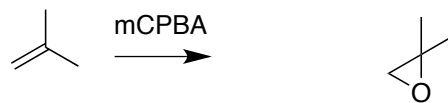
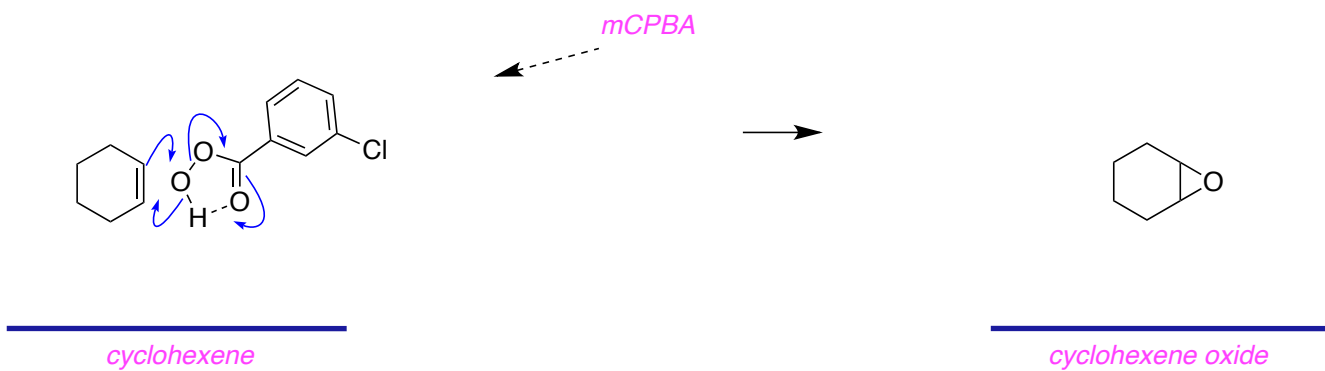
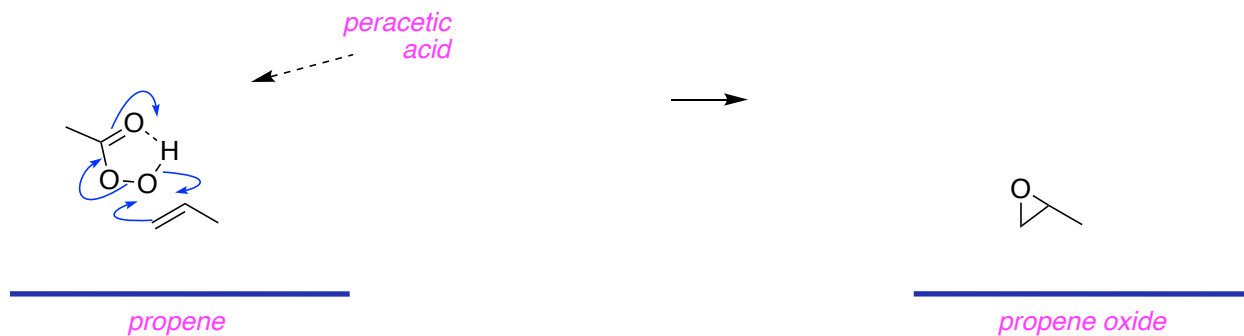
dimethyldioxirane

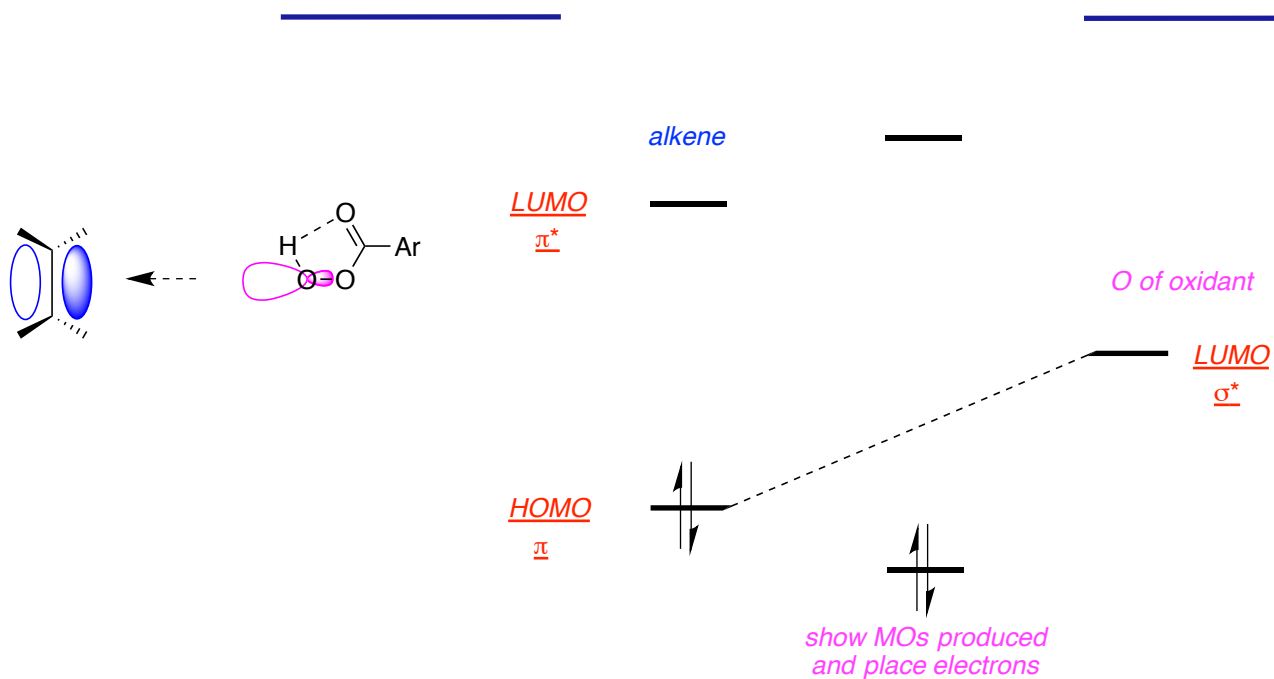
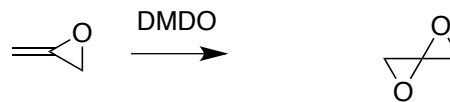
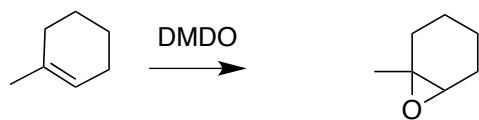


product after donation
of oxygen

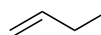
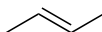
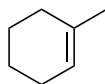
electrophilic
nucleophile.

addition reaction.





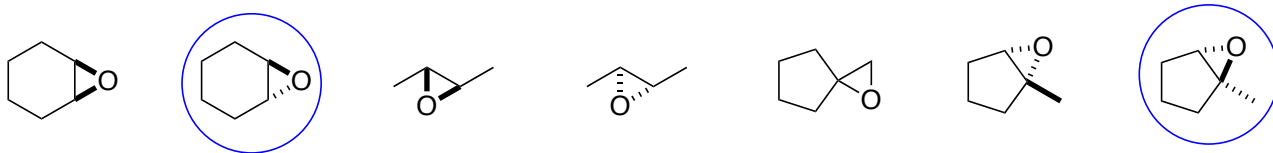
C. Rates Of Epoxidation



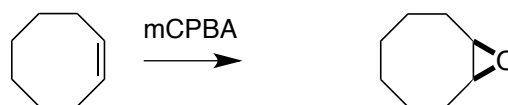
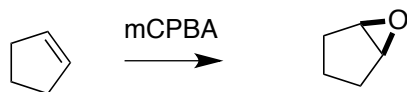
fastest epoxidation

slowest epoxidation

D. Stereospecificity

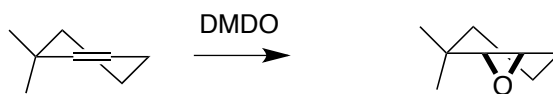


conserved



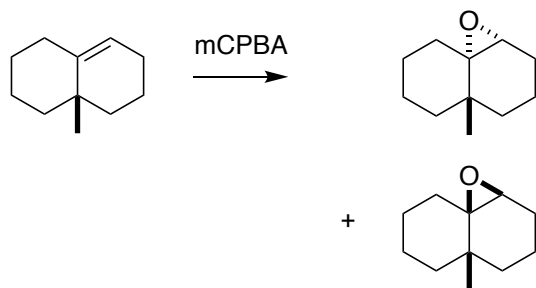
cis

cis

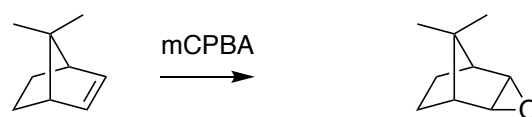


cis

cis

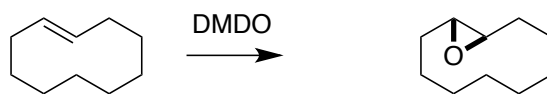
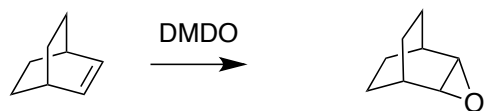


cis



cis

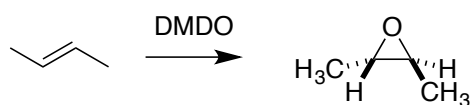
show sterically least hindered product



cis

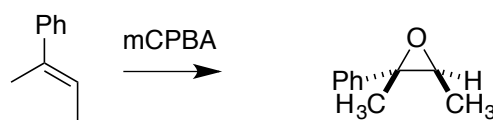
cis

always gives the *cis*



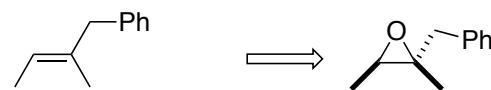
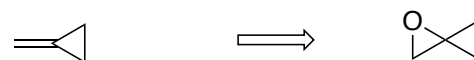
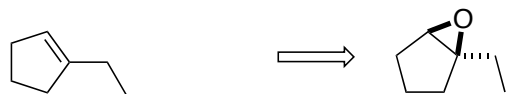
trans

cis



cis

trans

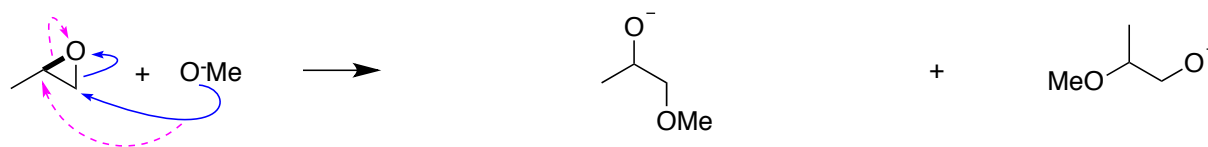


E. Regioselectivity Of Epoxide Ring Opening Reactions

Under Neutral Or Basic Conditions

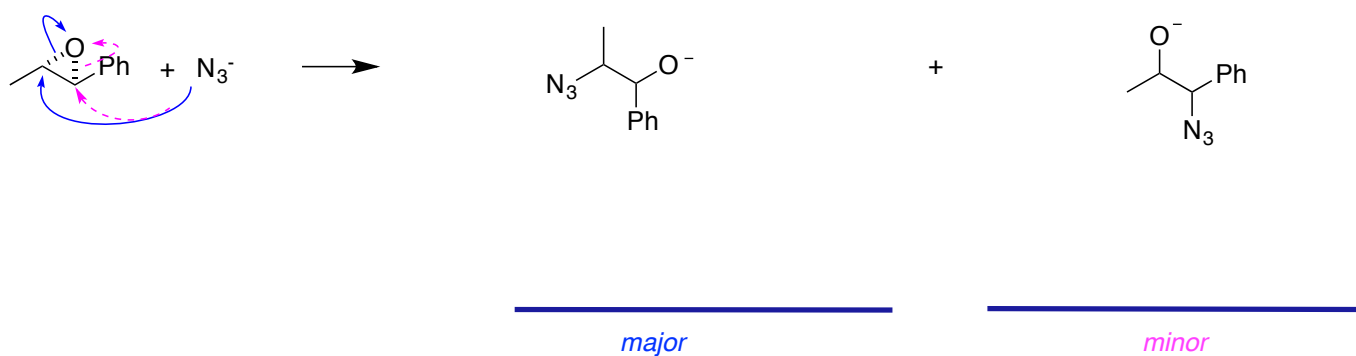
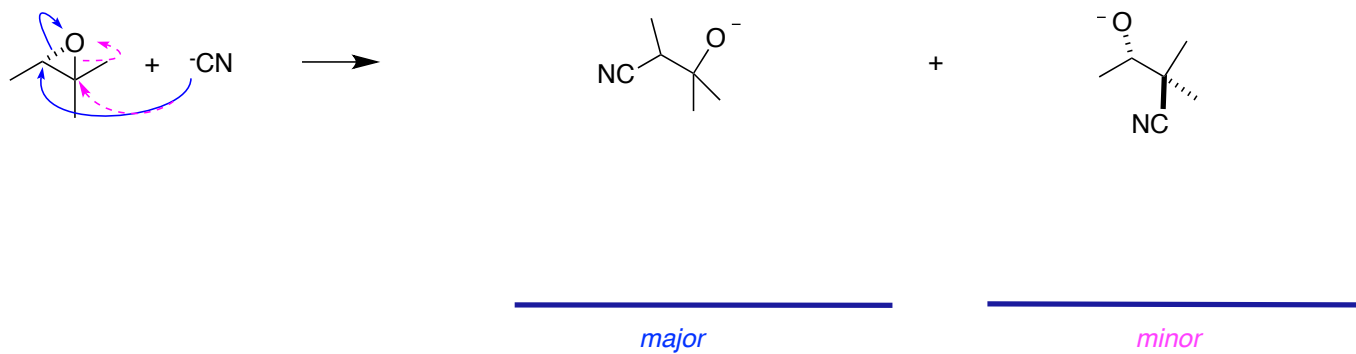
regioisomeric products

steric factors.



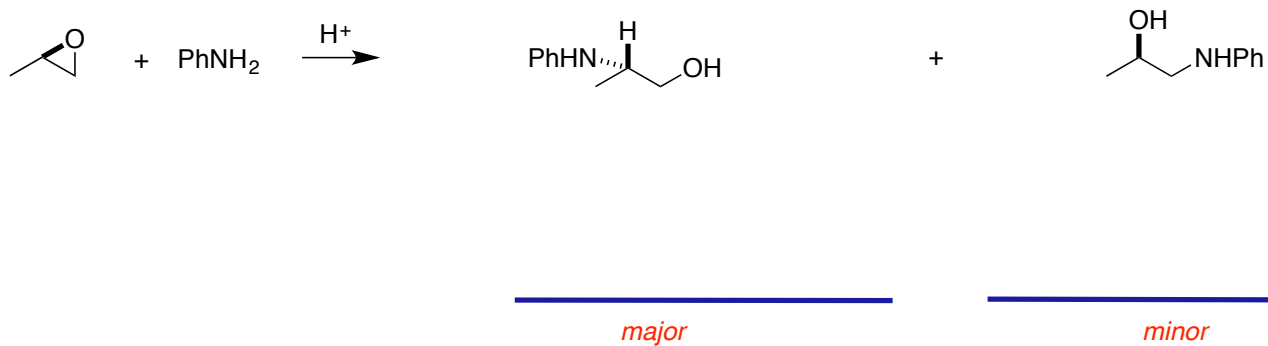
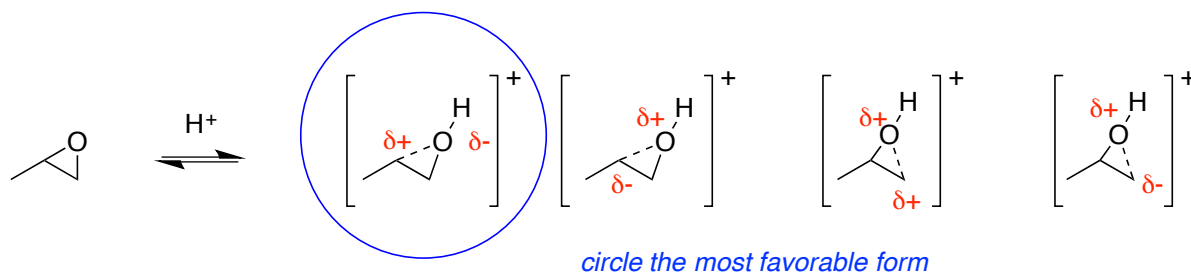
major

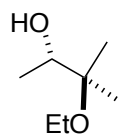
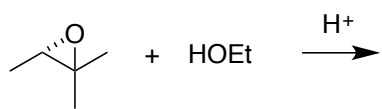
minor



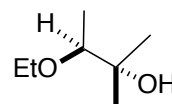
regioselective and not regiospecific.

Under Acidic Conditions



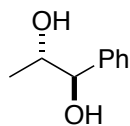
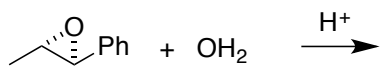


+

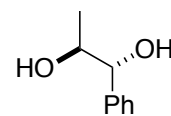


major

minor

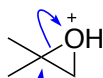
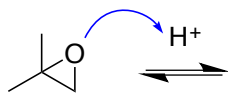


+



major

minor



HOMe

