Oxidations

from chapter(s) _____ in the recommended text

A. Introduction

B. Amine Oxidations

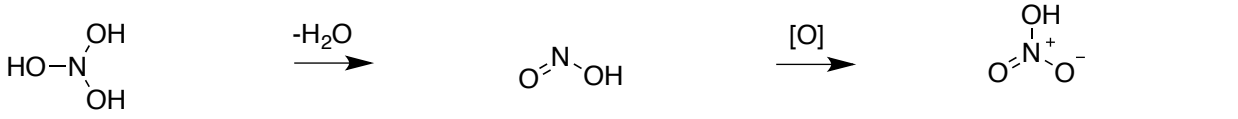
increasing the

Ammonia

dehydrates
water.

hydroxylamine

dihydroxylamine or azinic acid



trihydroxyamine

nitrous acid

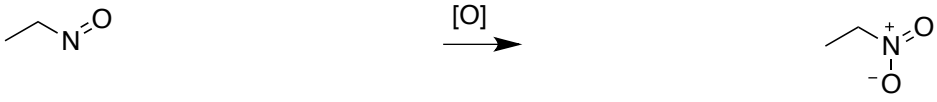
nitric acid

tautomers.

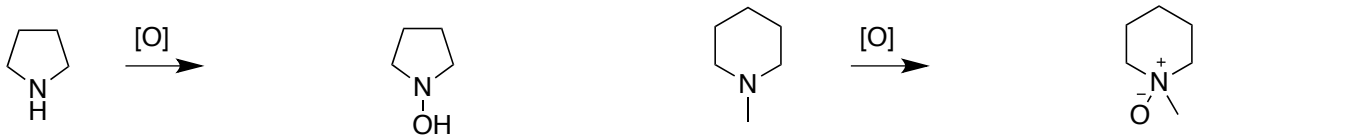
do tend

Organic Amines

hydroxylamine *intermediate*



nitroso compound *nitro compound*

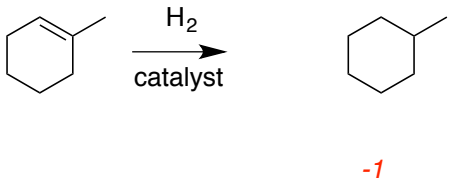


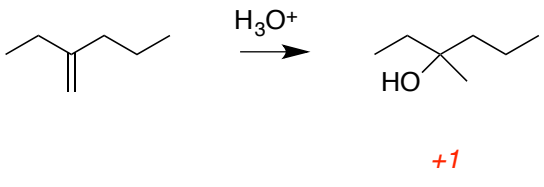
hydroxylamine *N-oxide*

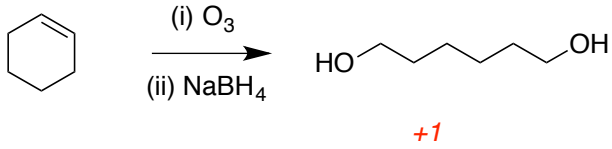
easier to

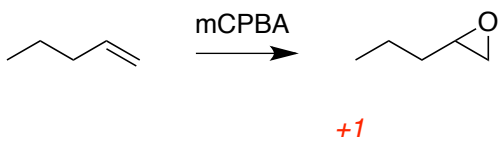
C. Oxidations Of Alkenes And Alkynes Via Additions Of Heteroatoms

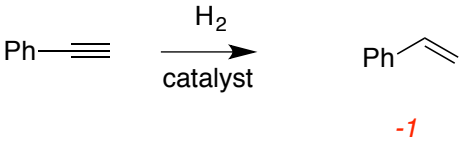
oxidation.

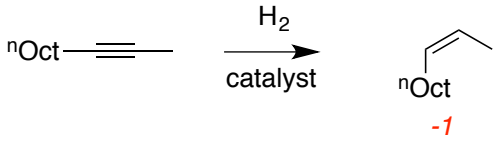


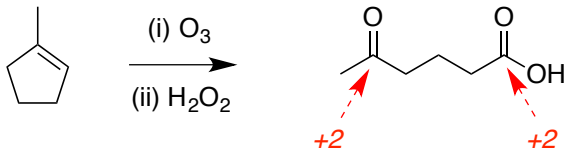


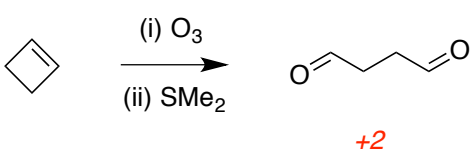


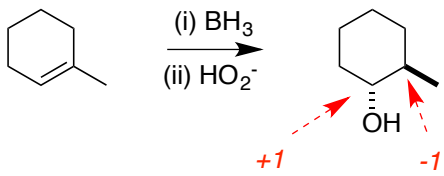


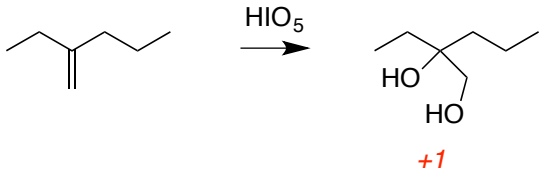




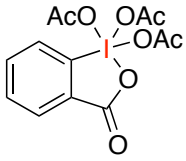






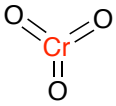


D. Oxidation States Of Common Oxidants

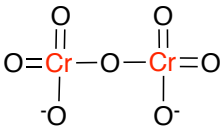


+5

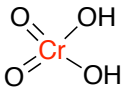
+4



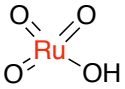
+6



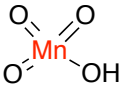
+6



+6



+7



+7

Ag_2O

+1

high oxidation states

E. Dehydrogenation Reactions

oxidation reaction.

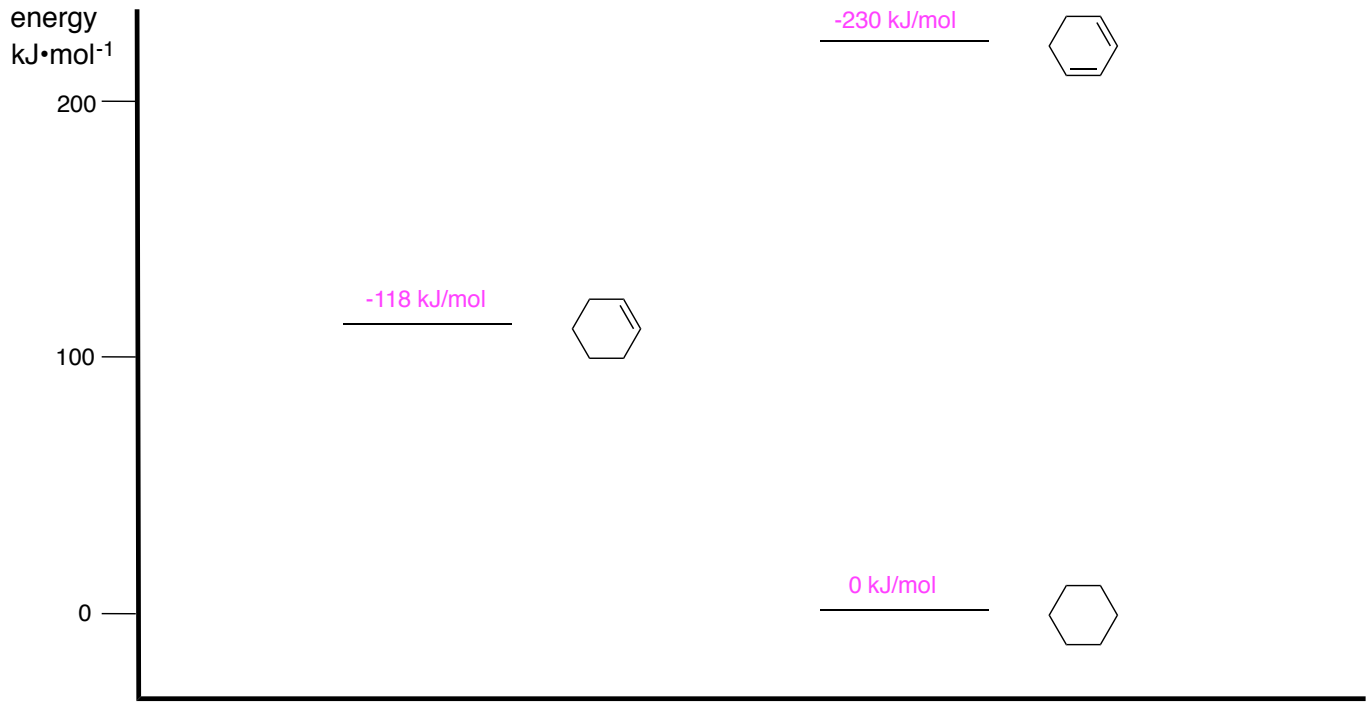
do not influence

does lower it
The Principle of Microscopic Reversibility.

kinetic barrier
enclosed from
easier to find
greater.

Heat Of Hydrogenation

Energy is *liberated*
less stable
can be used
hydrogenation.

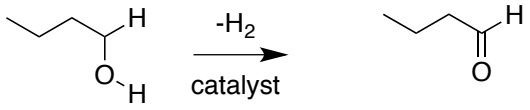


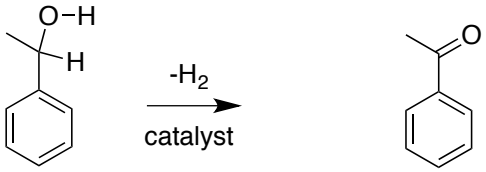
downhill
oxidation

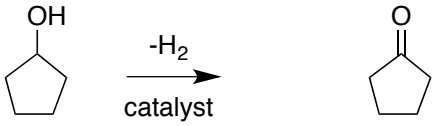
F. Oxidation Of Alcohols

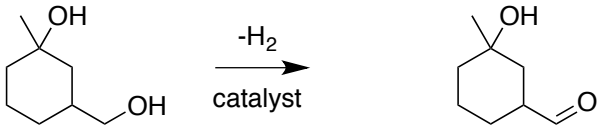
Catalytic Dehydrogenation

oxidize



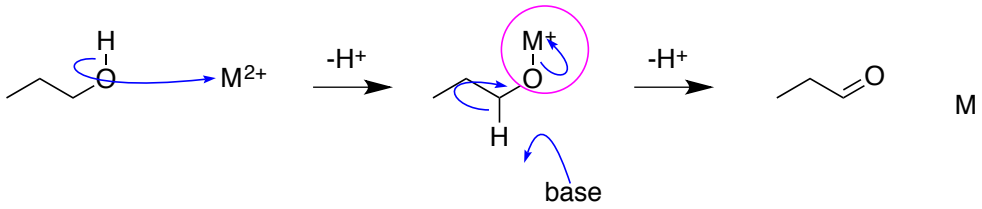




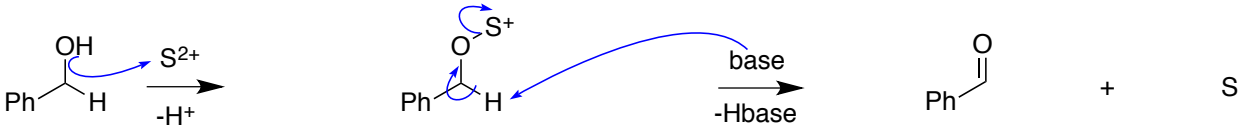


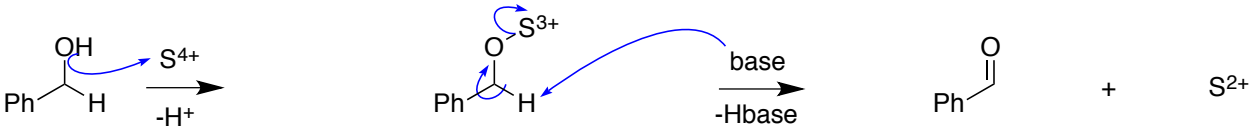
primary / secondary and not *tertiary*
tertiary alcohols than *primary / secondary*

Elimination From Alkoxides: A Mechanistic Commonality Between Many Alcohol Oxidations

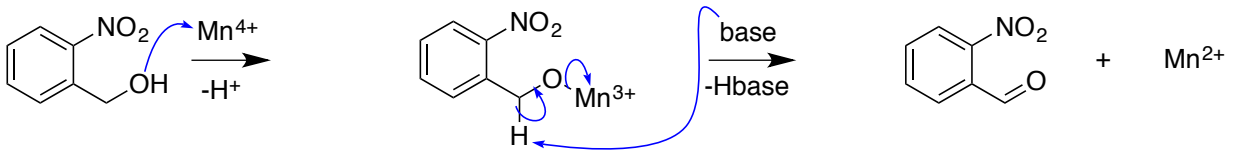


E2 mechanism.
reduced;
high oxidation
reduced.
It is *harder*
high oxidation state.

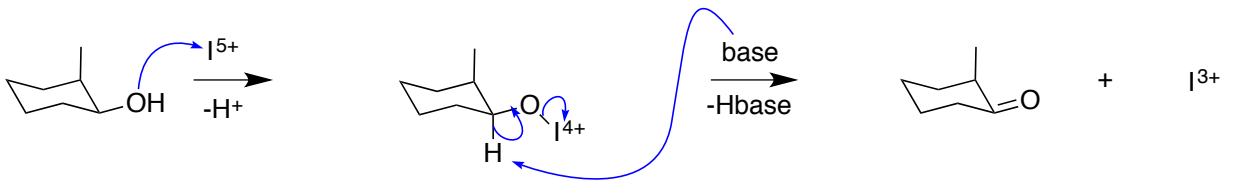




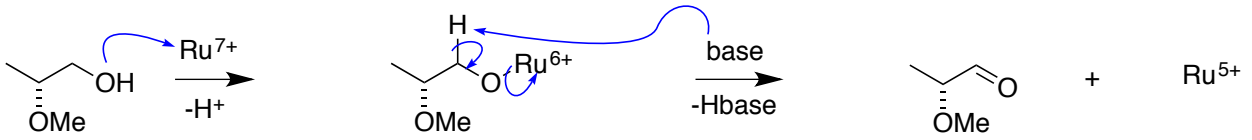
alkoxide



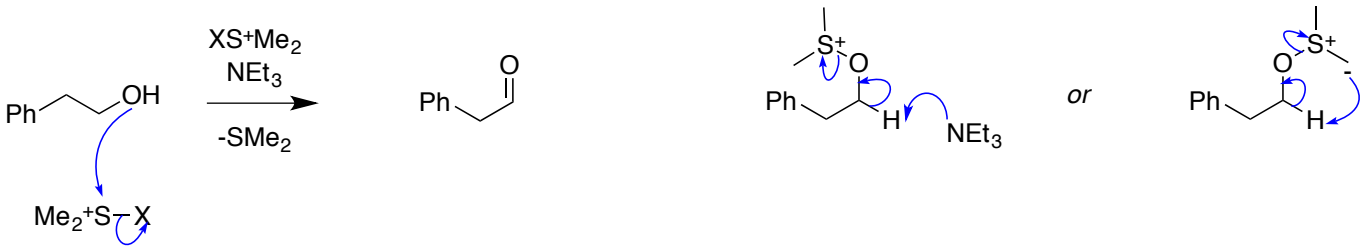
alkoxide



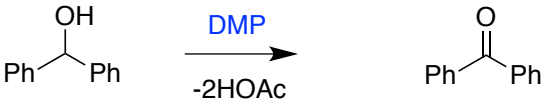
alkoxide

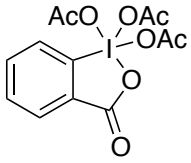


alkoxide

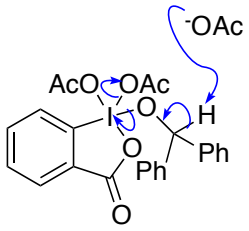


intermolecular *intramolecular*

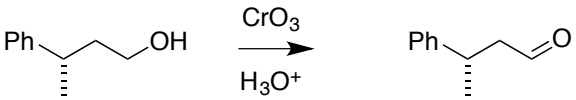


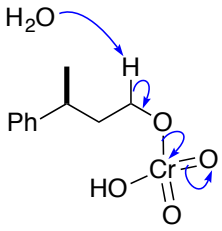


DMP



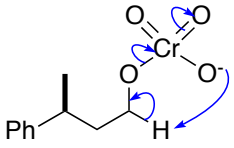
intermolecular



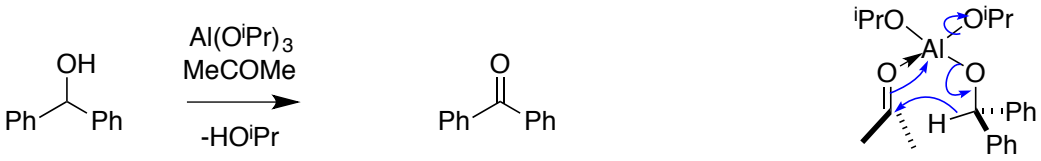


intermolecular

or

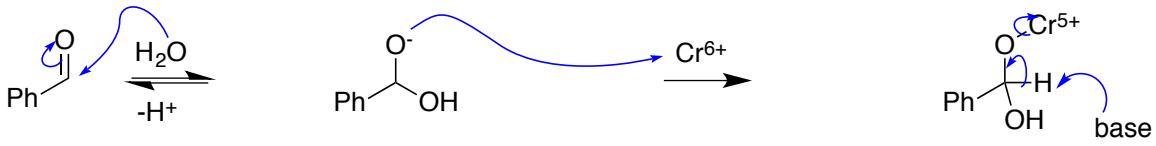


intramolecular

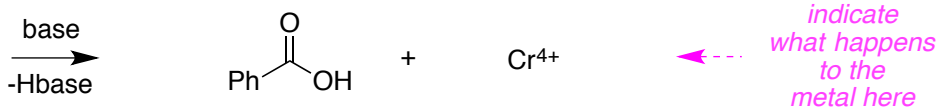


intramolecular

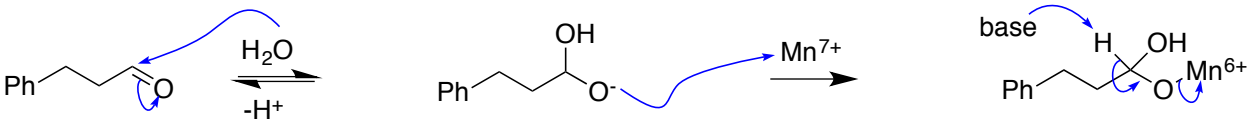
G. Oxidation Of Aldehydes



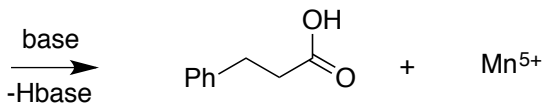
hydrate *alkoxide*



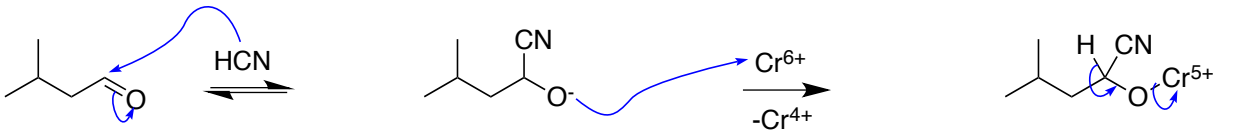
indicate what happens to the metal here



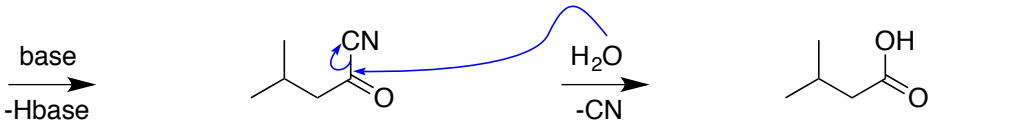
hydrate *alkoxide*



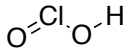
Ketones *cannot*
do not have



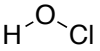
alkoxide



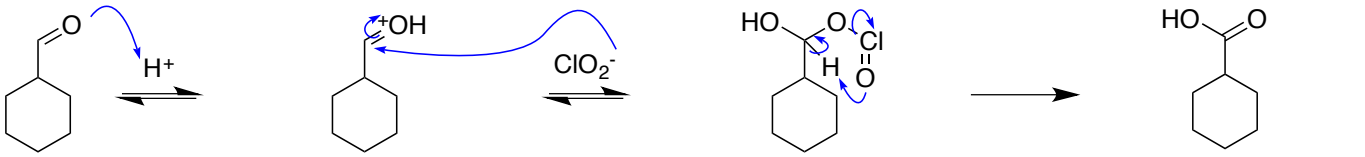
acyl nitrile



chlorous acid

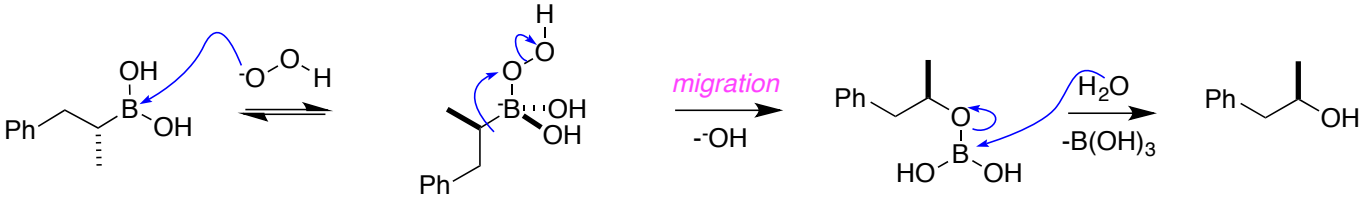


hypochlorous acid

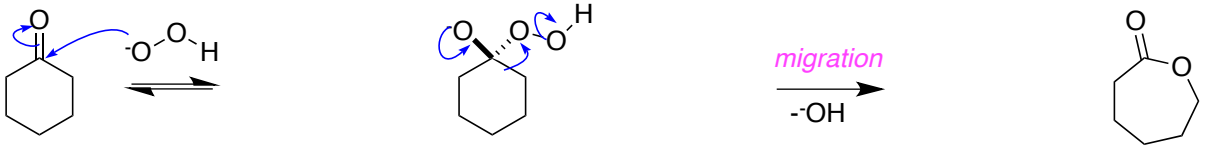


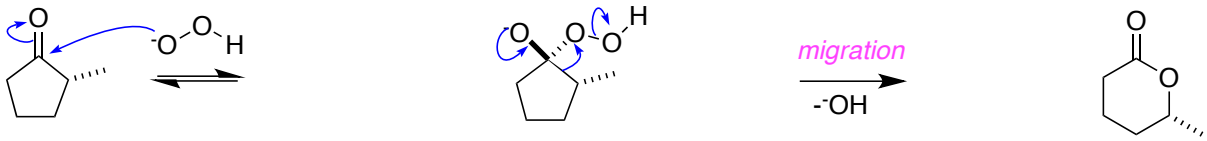
"alkoxide"

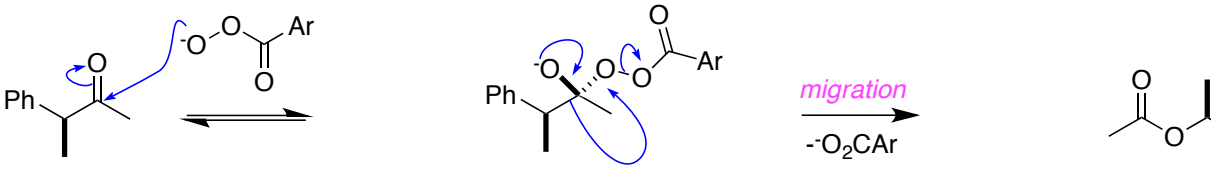
H. Oxidation Of Ketones



anti-periplanar in


migration
-OH


migration
-OH


Ph
Ar
migration
-O2CAr