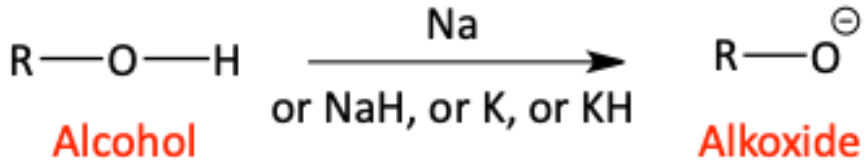
Alcohol Reaction Review: Answer Key

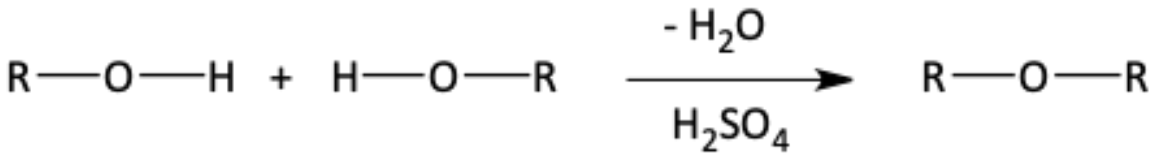
All reactions, complete.

Name: _____ Date: _____

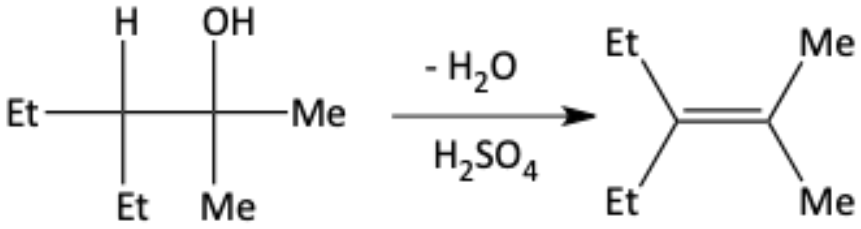
Alkoxide formation



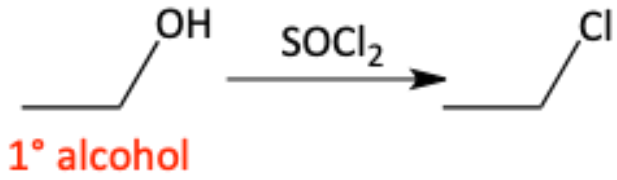
Dehydration to form an ether

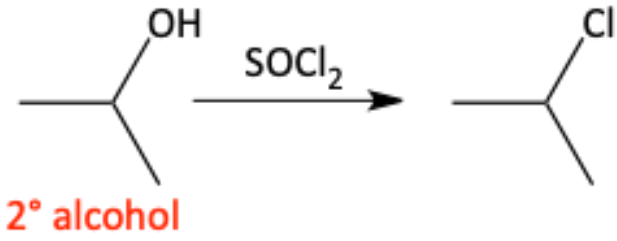


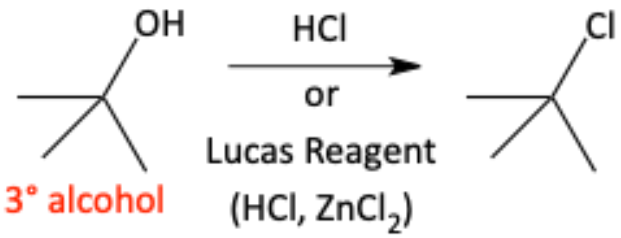
Dehydration to form an alkene

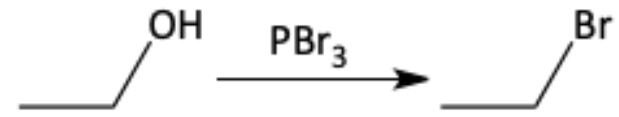


Alcohols to good leaving groups





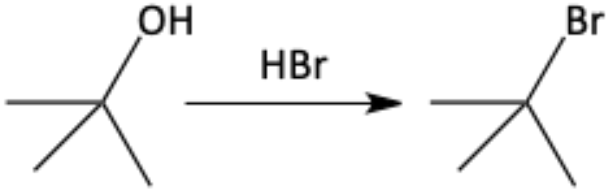




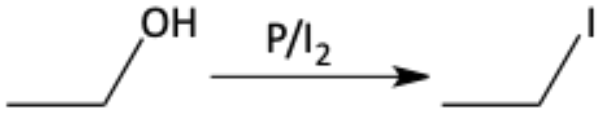
1° alcohol



2° alcohol



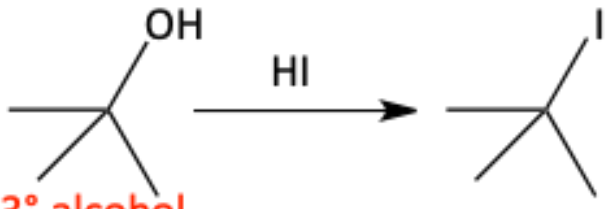
3° alcohol



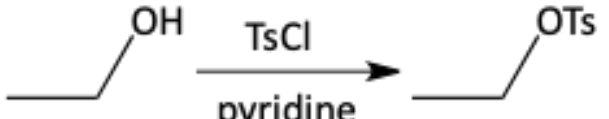
1° alcohol



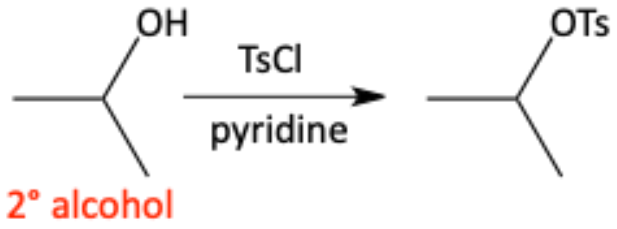
2° alcohol

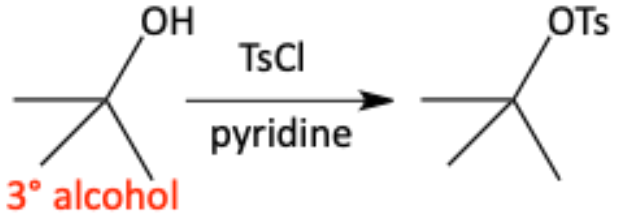


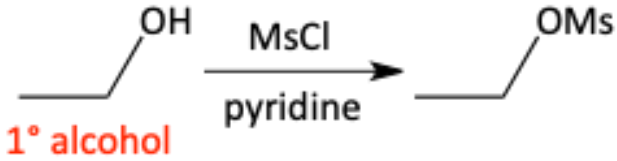
3° alcohol

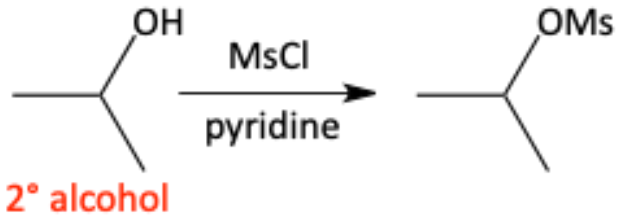


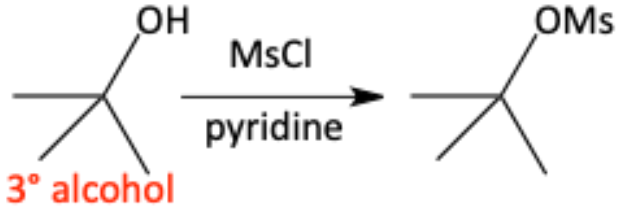
1° alcohol



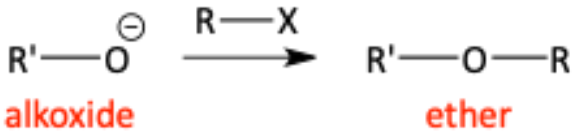




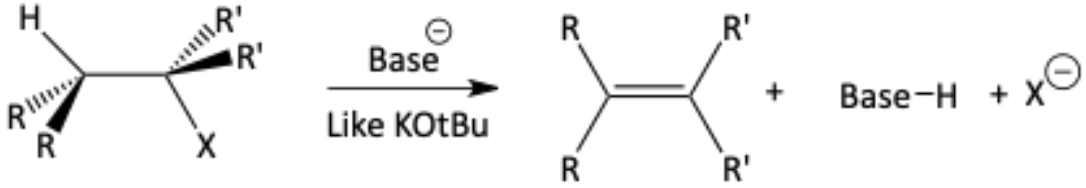




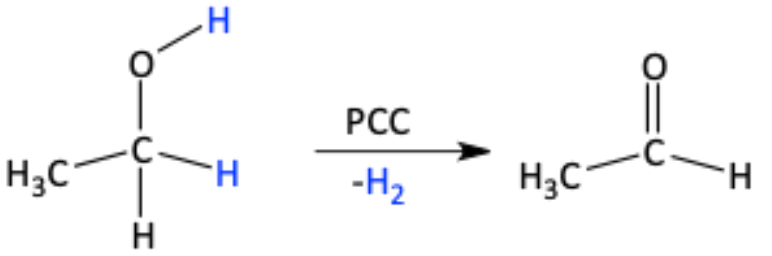
Williamson Ether Synthesis



E2 Elimination



Oxidation of alcohols with weak oxidizer

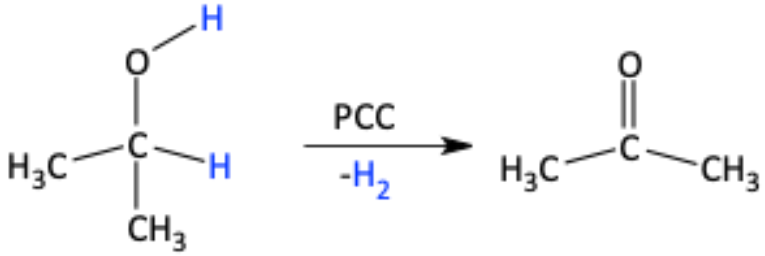


primary alcohol

1 C-O bond

aldehyde

2 C-O bonds

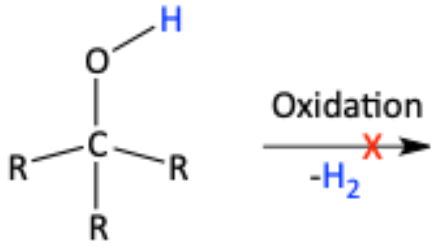


secondary alcohol

1 C-O bond

ketone

2 C-O bonds

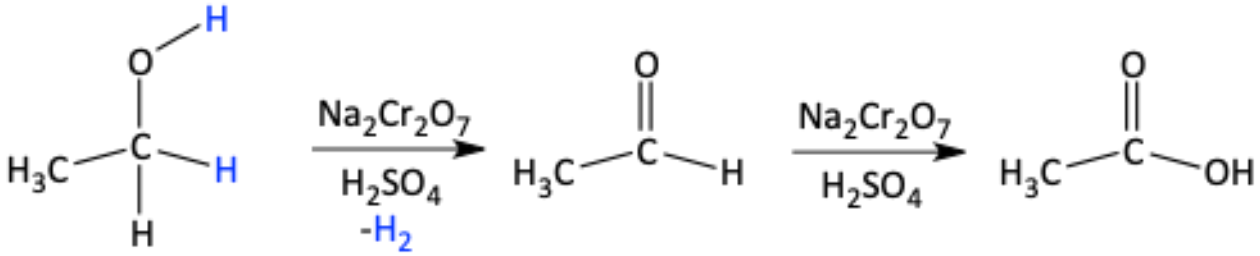


tertiary alcohol

1 C-O bond

Cannot lose two H atoms. Cannot oxidize.

Oxidation of alcohols with strong oxidizer



primary alcohol

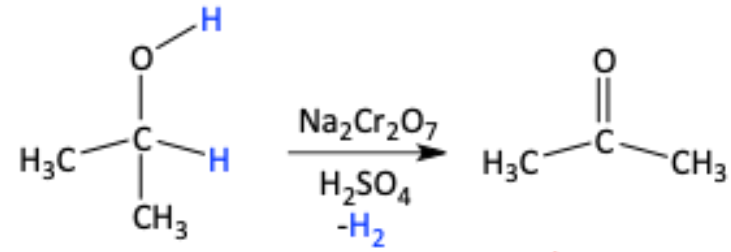
1 C-O bond

aldehyde

2 C-O bonds

carboxylic acid

3 C-O bonds

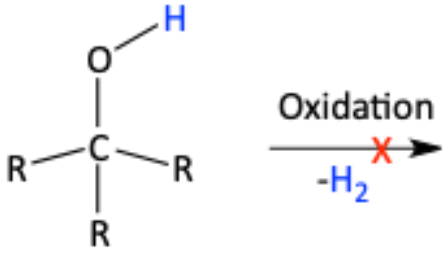


secondary alcohol

1 C-O bond

ketone

2 C-O bonds

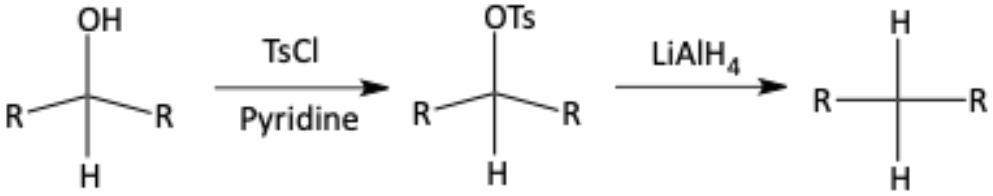


tertiary alcohol

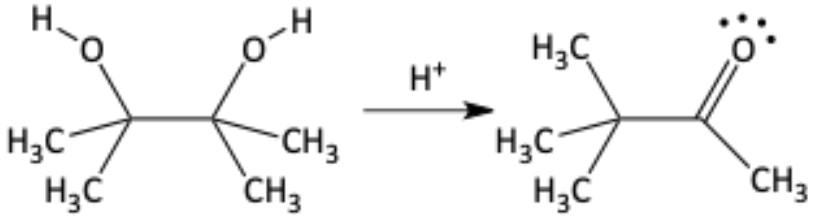
1 C-O bond

Cannot lose two H atoms. Cannot oxidize.

Reduction of Alcohols



Pinacol Rearrangement



pinacol

pinacolone

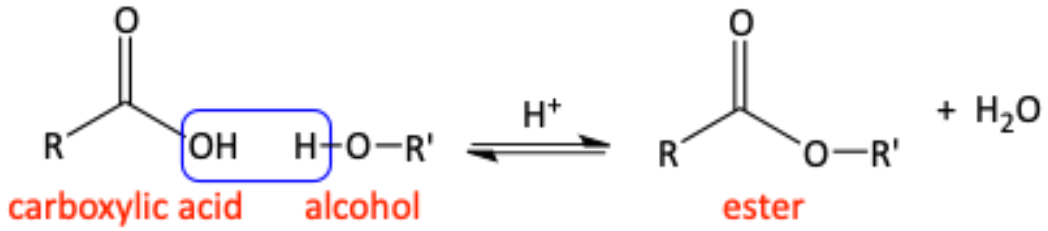
Periodic acid cleavage of diol



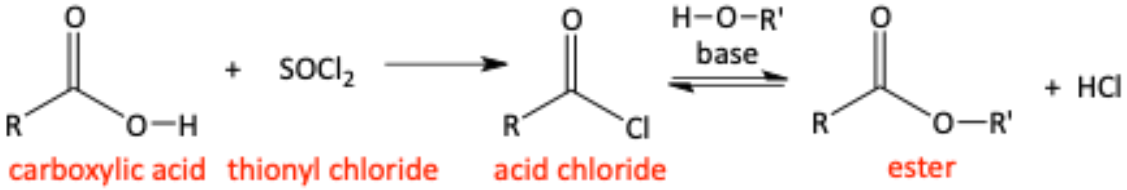
ketone

aldehyde

Fischer Esterification – carboxylic acid to ester



Carboxylic acid to acid chloride to ester



Thiol reactions

