

Ignition

Fuse

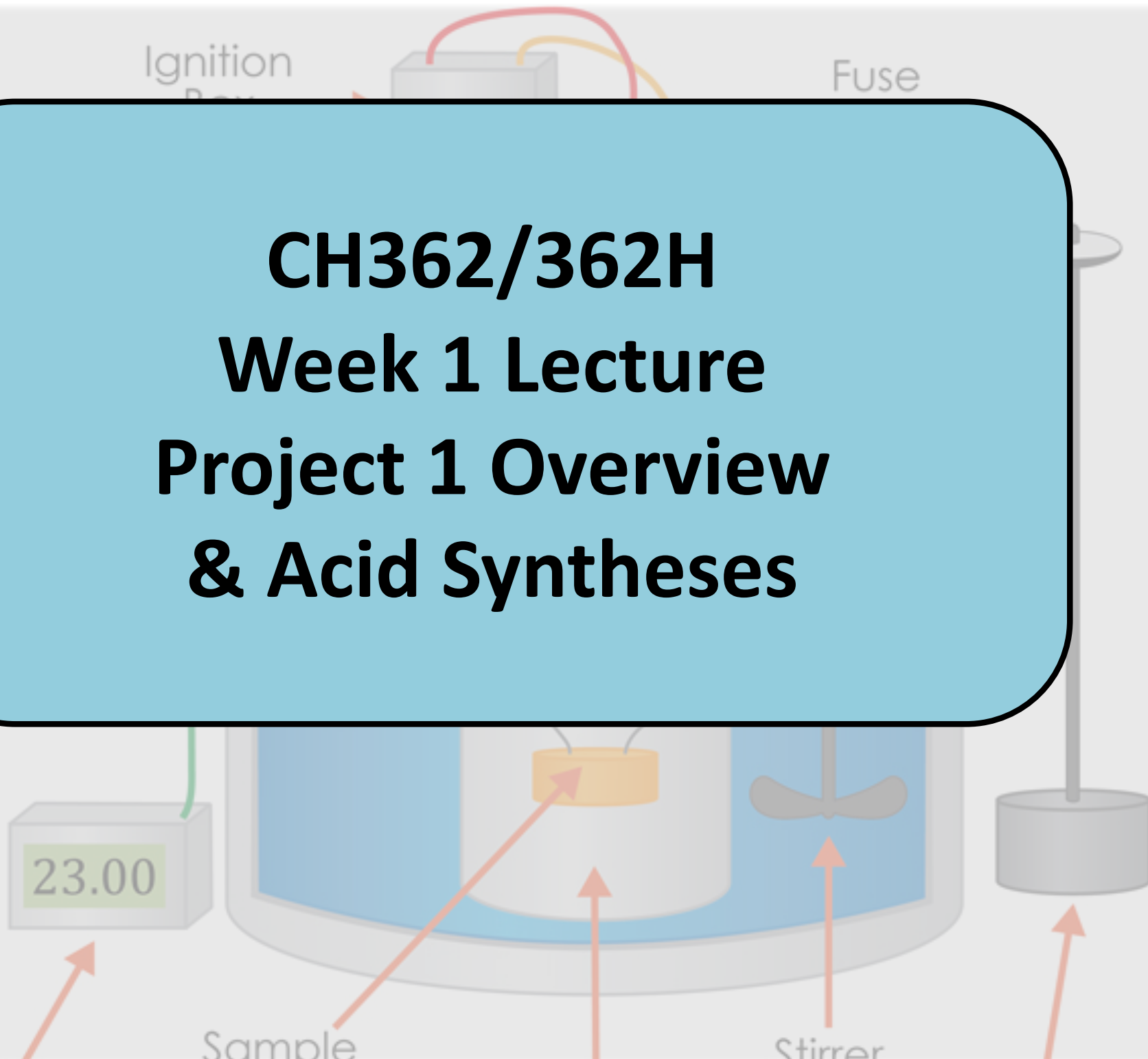
Ther

CH362/362H
Week 1 Lecture
Project 1 Overview
& Acid Syntheses

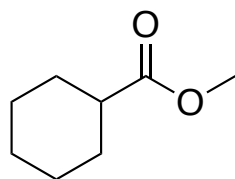
23.00

Sample

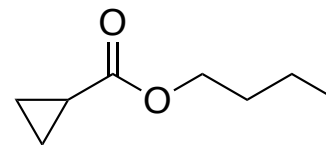
Stirrer



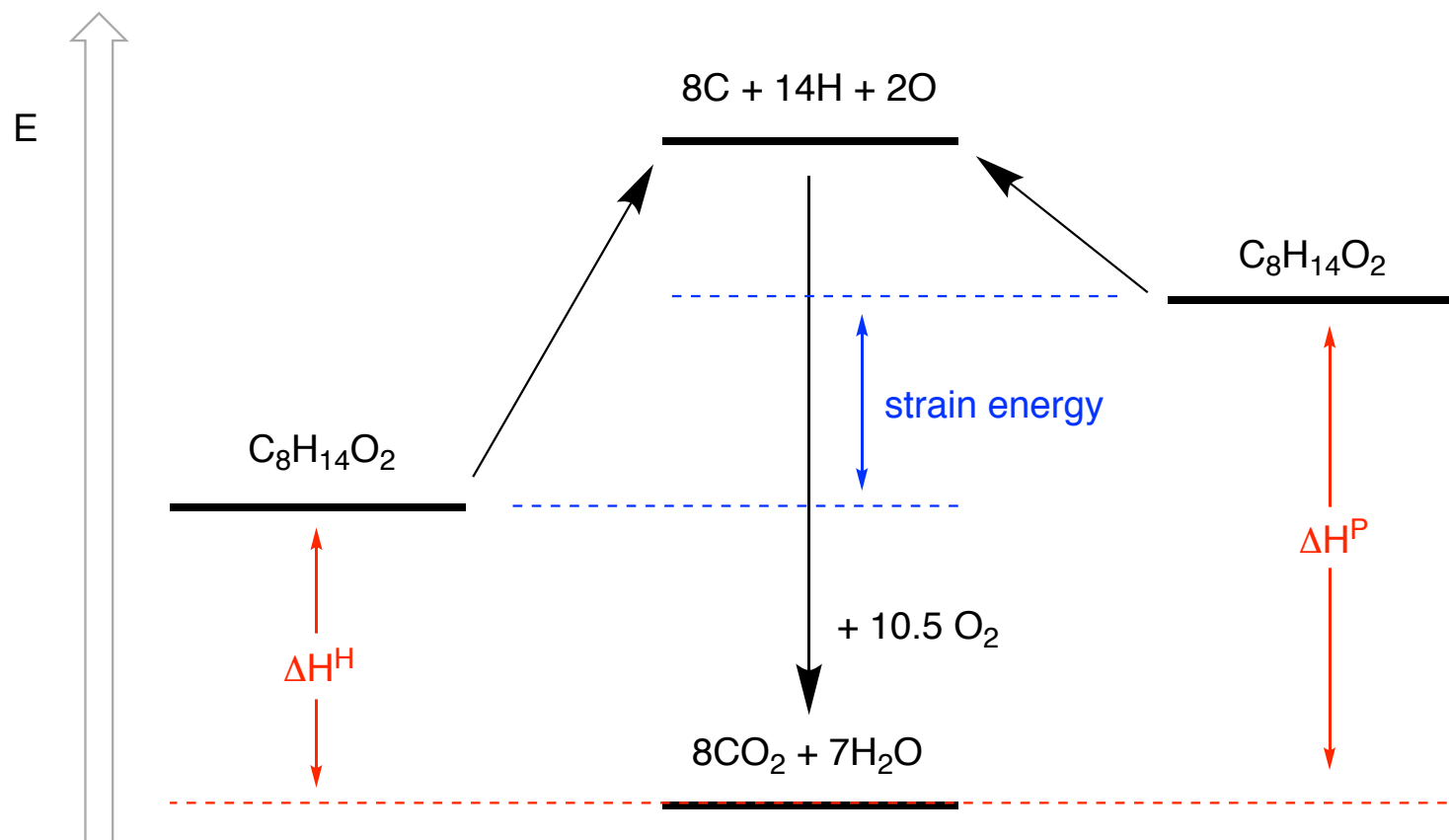
Project 1 Overview: Strain Energy of the Cyclopropane Ring from Heats of Combustion



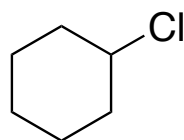
methyl cyclohexanecarboxylate
"H-ester"



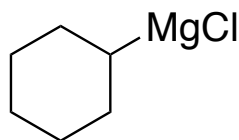
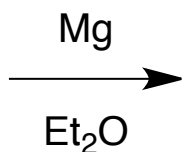
butyl cyclopropanecarboxylate
"P-ester"



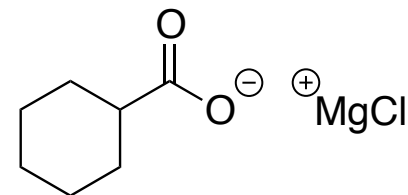
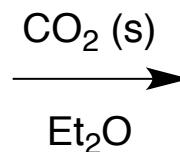
Synthesis of Methyl Cyclohexanecarboxylate (the "H-ester")



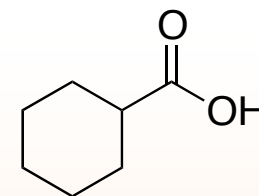
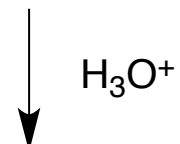
chlorocyclohexane



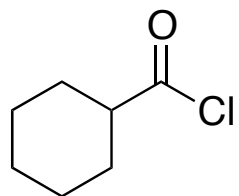
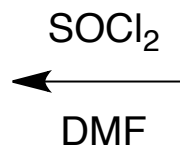
cyclohexylmagnesium
chloride
(Grignard reagent)



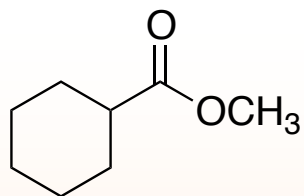
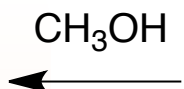
magnesium carboxylate salt



cyclohexanecarboxylic
acid
"H-acid"



acid chloride

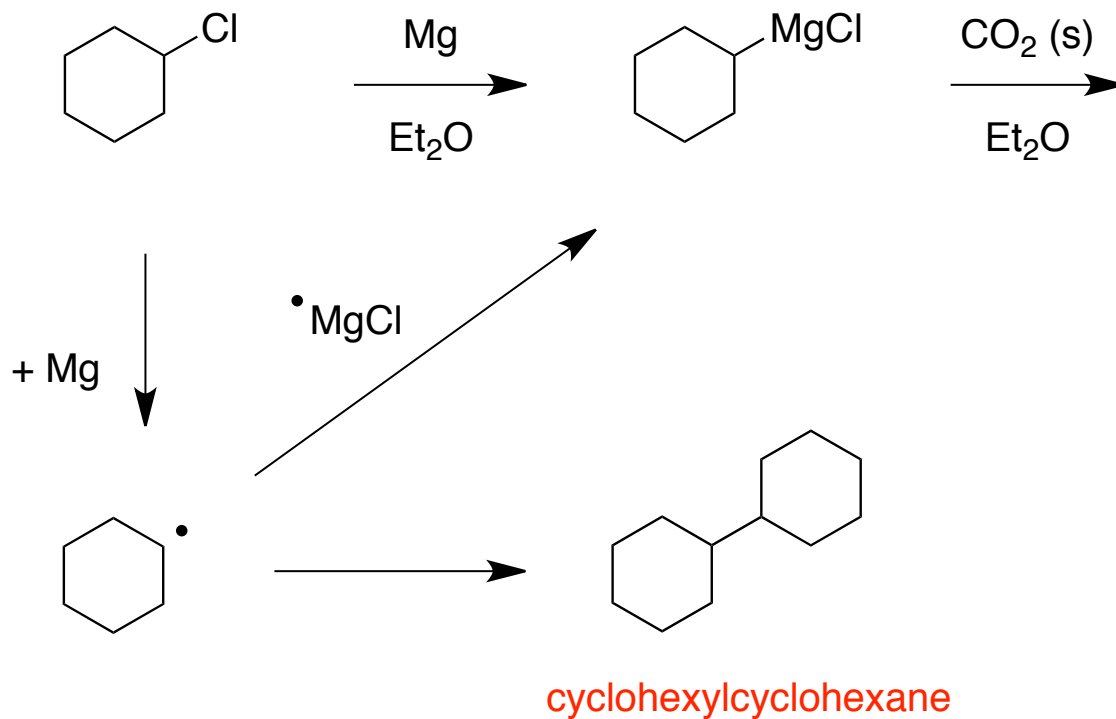


methyl cyclohexane-
carboxylate
"H-ester"

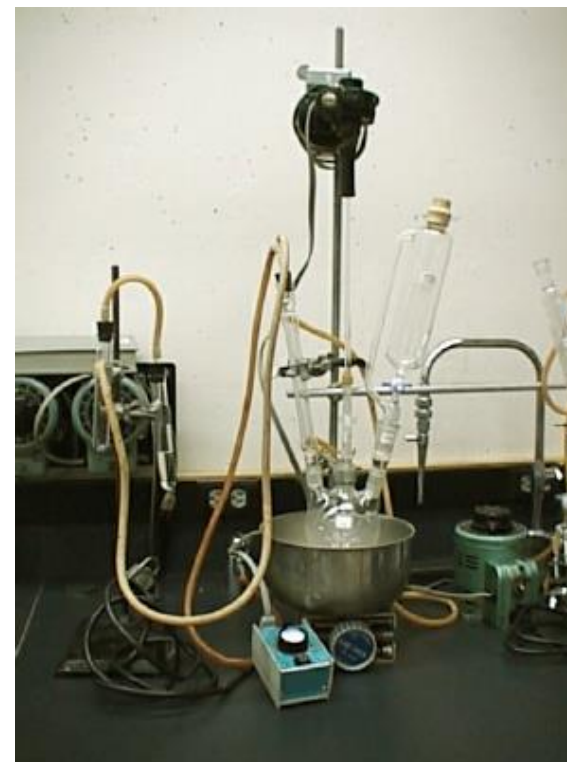
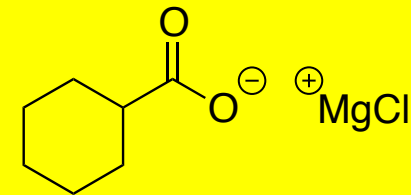
purify by vacuum distillation
characterize by IR
spectroscopy, bp/pressure
range, GC, and refractometry

purify by vacuum distillation
characterize by IR
spectroscopy
and bp/pressure range

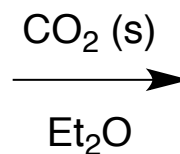
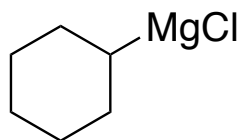
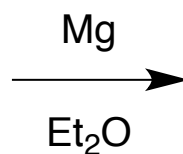
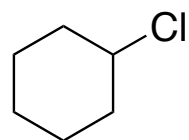
Synthesis of Methyl Cyclohexanecarboxylate (the "H-ester")



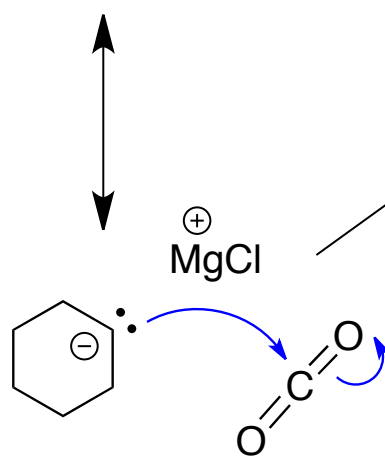
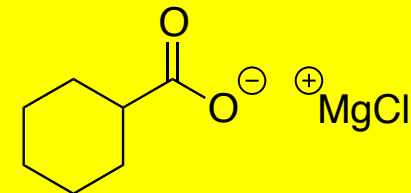
stopping point for Friday (wk1)



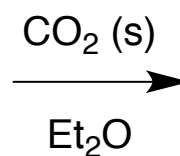
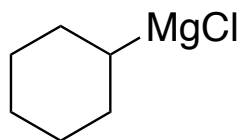
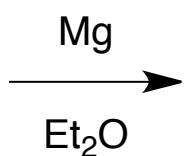
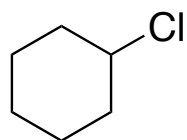
Synthesis of Methyl Cyclohexanecarboxylate (the "H-ester")



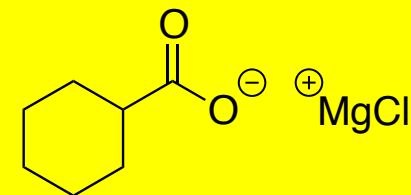
stopping point for Friday (wk1)



Synthesis of Methyl Cyclohexanecarboxylate (the "H-ester")



stopping point for Friday (wk1)

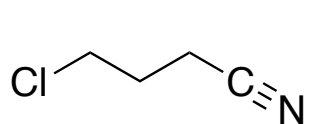


alkylating agent, toxic!
use in fume hood, use
gloves throughout

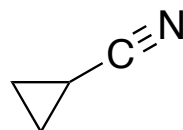
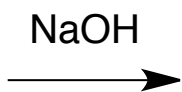
strong base and highly
flammable and
potentially pyrophoric



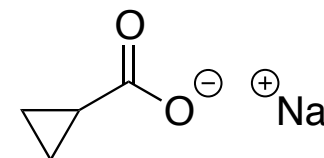
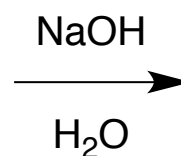
Synthesis of Butyl Cyclopropanecarboxylate (the "P-ester")



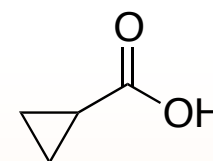
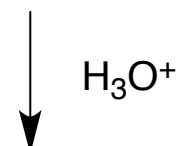
4-chlorobutyronitrile



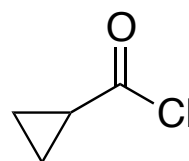
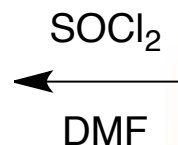
cyanocyclopropane



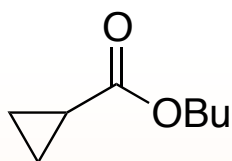
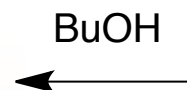
sodium carboxylate salt



cyclopropanecarboxylic acid
"P-acid"



acid chloride



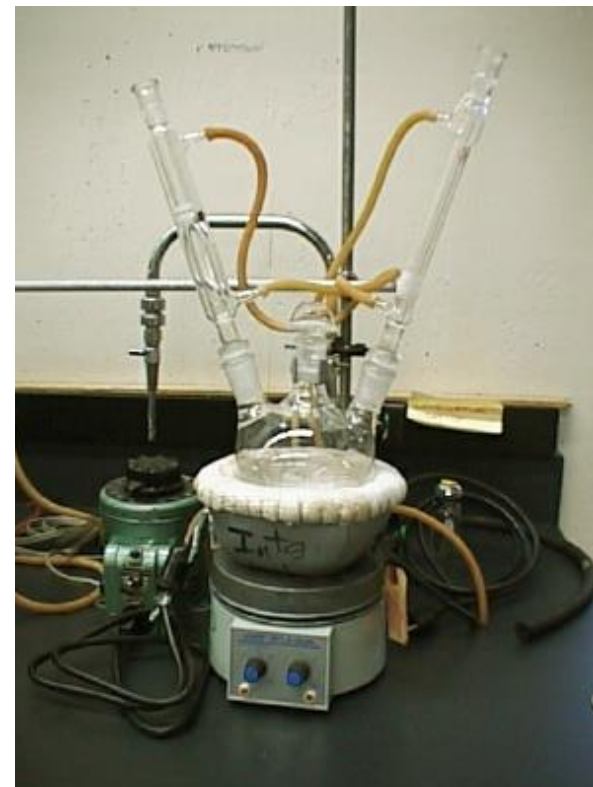
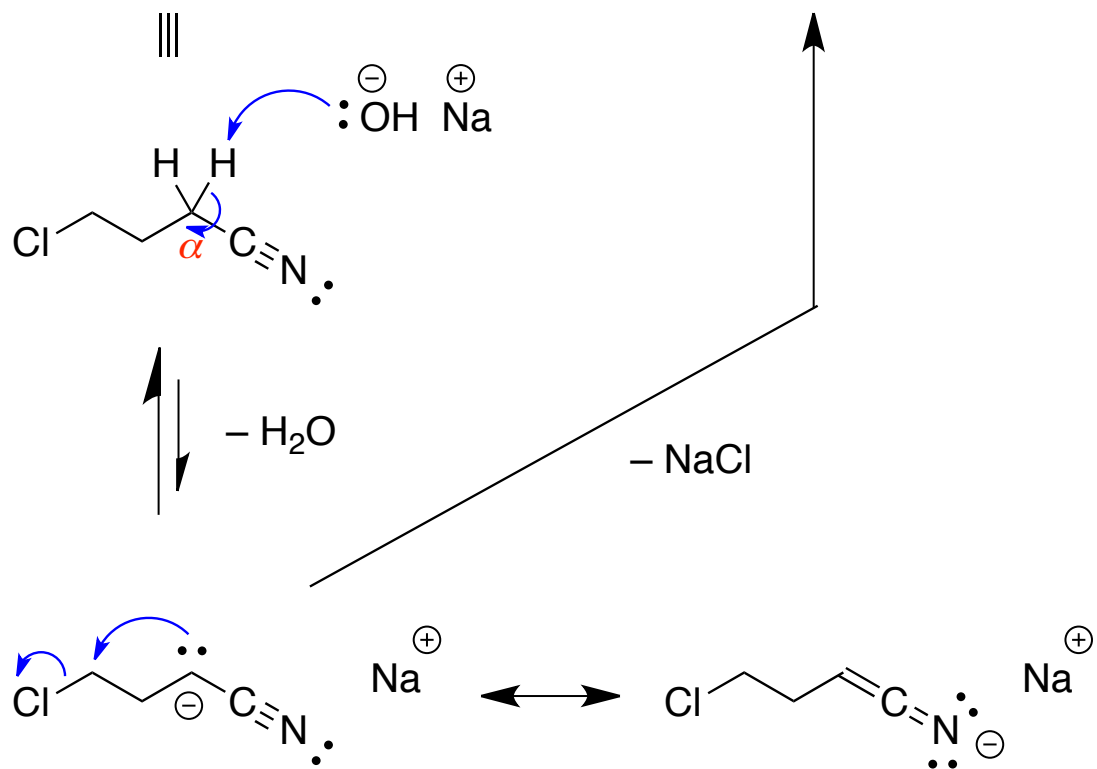
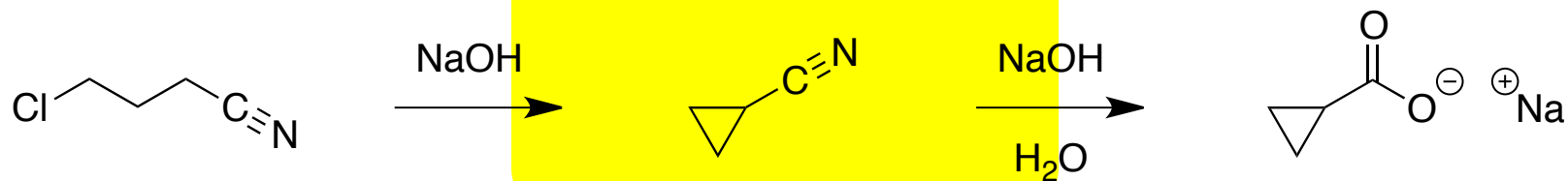
butyl cyclopropane-
carboxylate
"P-ester"

purify by vacuum distillation
characterize by IR
spectroscopy, bp/pressure
range, GC, and refractometry

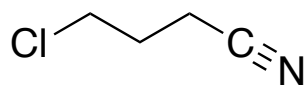
purify by vacuum distillation
characterize by IR
spectroscopy
and bp/pressure range

Synthesis of Butyl Cyclopropanecarboxylate (the "P-ester")

stopping point for Friday (wk1)

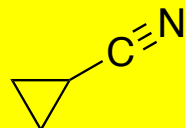


Synthesis of Butyl Cyclopropanecarboxylate (the "P-ester")



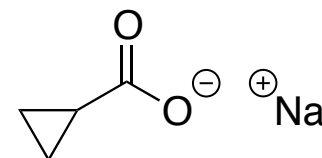
NaOH

stopping point for Friday (wk1)



NaOH

H₂O



alkylating agent, toxic!
use in fume hood, use
gloves throughout

powdered NaOH is
caustic and an
inhalation hazard;
very hygroscopic,
transfer to flask as
quickly as possible



What to Do Today

- check-in at issue desk in GBAD 409 to collect your lab manual, read and sign-off on safety rules, & if not continuing from CH361, get locker keys & review and sign-off on your equipment inventory
- find equipment for Friday's lab, make sure that it is clean, and collect together in your metal bowl (label with name, section WF, and experiment H or P)
- place labeled bowl in instrument room; for H group, the glassware will be placed in a drying oven ready for Friday, for P group, equipment will be taken down to GBAD 209 ready for Friday

H



P

