

ORGANIC CHEMISTRY 1 LECTURE GUIDE 2019

BY RHETT C. SMITH

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Companion Books from the Proton Guru:

Organic Chemistry 1 Reactions and Practice Problems 2019

by Rhett C. Smith

Organic Chemistry 1 Primer 2019,

by Rhett C. Smith, Andrew G. Tennyson, and Tania Houjeiry

Lecture Topic III.15: Preparation of Carbonyls from Alkynes
Hydration in the Presence of Mercury Salt

Alkynes can undergo hydration reactions:



As with alkenes, hydration of an alkyne leads to initial formation of a Markovnikov alcohol. This tautomerizes, so the observed product will be a carbonyl.

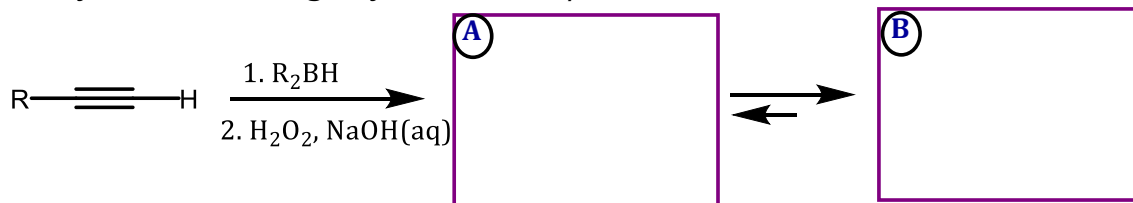
Another difference from alkene hydration is that we need to add a mercury salt. This is needed because:



Notes

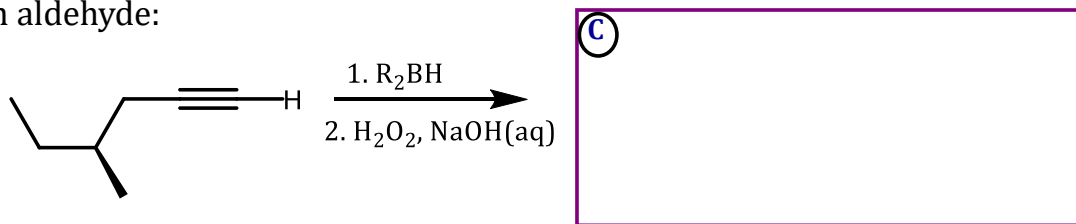
Lecture Topic III.15: Preparation of Carbonyls from Alkynes
Hydroboration/Oxidation

Alkynes can undergo hydroboration/oxidation:



As with alkenes, hydroboration/oxidation of an alkyne leads to initial formation of a Non-Markovnikov alcohol. This tautomerizes, so the observed product will be a carbonyl.

The hydroboration/oxidation of a terminal alkyne leads to formation of an aldehyde:



Notes