ORGANIC CHEMISTRY 1 LECTURE GUIDE 2019

BY RHETT C. SMITH

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Organic Chemistry 1
Lecture Guide 2019

By Rhett C. Smith, Ph.D.

Companion Books from the Proton Guru:

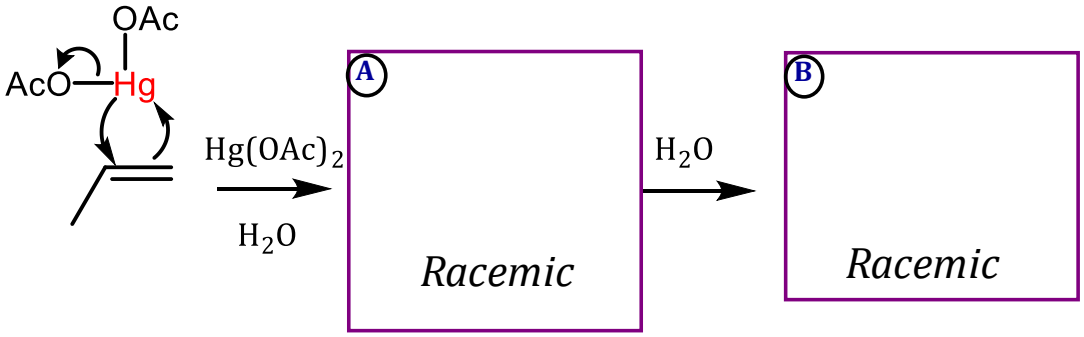
Organic Chemistry 1 Reactions and Practice Problems 2019

by Rhett C. Smith

Organic Chemistry 1 Primer 2019,

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

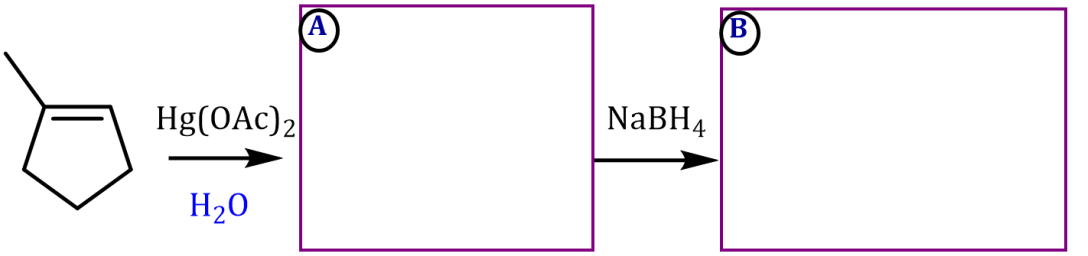
Alkenes react with $Hg(OAc)_2$ (mercuric acetate, $^-OAc = {}^-OC(O)CH_3$) to form a mercurinium intermediate:



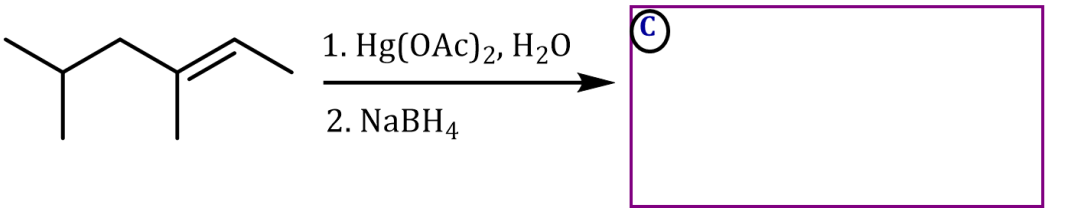
You should recognize that the arrow-pushing to accomplish formation of the mercurinium intermediate in Box A is the same as for forming the halonium ions. Also, in the presence of water, the ring is opened by backside nucleophilic attack at the more substituted carbon in an S_N2 fashion.

Notes

The reaction of an alkene with $Hg(OAc)_2$ in the presence of water is called **oxymercuration**. One very useful second step is to replace the mercury with a hydrogen, so that the final species is an alcohol.



The net result is a **Markovnikov product.** The reduction step has a complex mechanism that is **not specific for *syn*- or *anti*- addition**. The Oxymercuration-reduction sequence is usually written on one arrow as:



Notes