

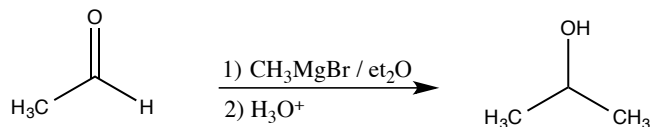
Chem 345 – Organic Reactions Chapter 19

Prepared by José Laboy, MS

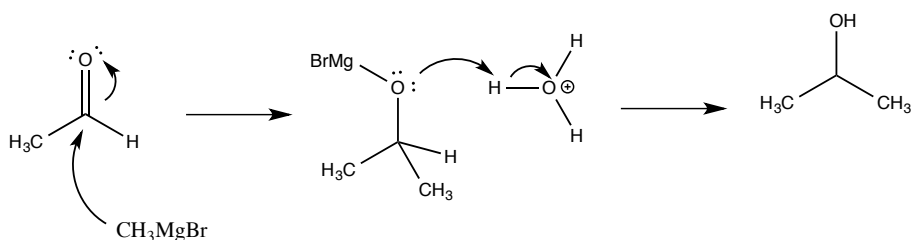
<http://www.chem.wisc.edu/areas/clc> (Resource page)

Reaction of Grignard Reagents with Aldehyde and Ketone

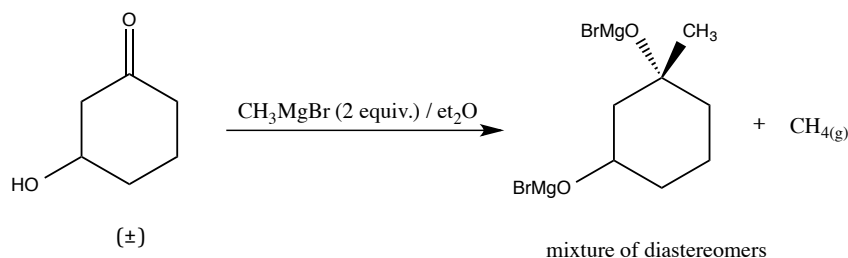
Reaction:



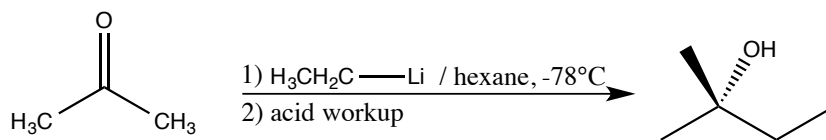
Mechanism:



Grignard reagents are powerful bases and nucleophiles. Care should be taken when there are other acidic protons on the molecule. Acid-base reactions are faster than addition reactions. Use of more than one equivalent will be necessary (see reaction below).



The same reaction occurs with dialkyl lithium compounds.



Another important issue is the use of a strong acid in the acid workup process. When ketones are reagents the product of a Grignard reaction is a tertiary alcohol. These can readily undergo dehydration in the presence of strong acids. Usually the reagent of choice for the acid workup is aqueous ammonium chloride, NH_4Cl . This compound is a weak acid and dehydrations are avoidable.