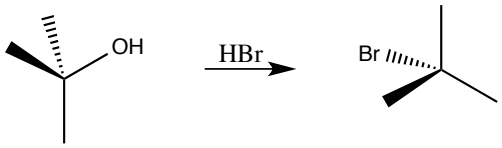
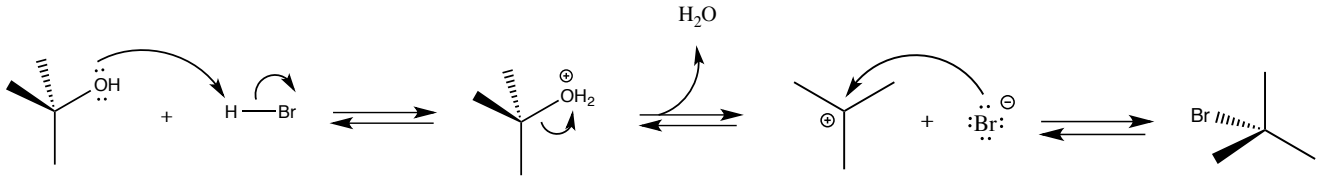
Chem 343 – Organic Reactions
Chapter 10
Prepared by José Laboy, MS
http://www.chem.wisc.edu/areas/clc (Resource page)

Reaction of a 3° Alcohol with Hydrogen Halides



Mechanism



S_N1 Reaction

This reaction is a classic S_N1 mechanism. It involves the formation of a carbocation, which incidentally is the rate-determining step of the reaction. To increase the yield of the reaction, which is under equilibrium conditions, either trapping water or distilling the product as it forms will do.

If the initial 3° alcohol is stereogenic the product will be a racemic mixture.

There is always some alkene product that results from the E1 mechanism. The reaction is usually carried out at room temperature to decrease alkene yield resulting from an E1 mechanism.