Chem 345 – Organic Reactions Chapter 21

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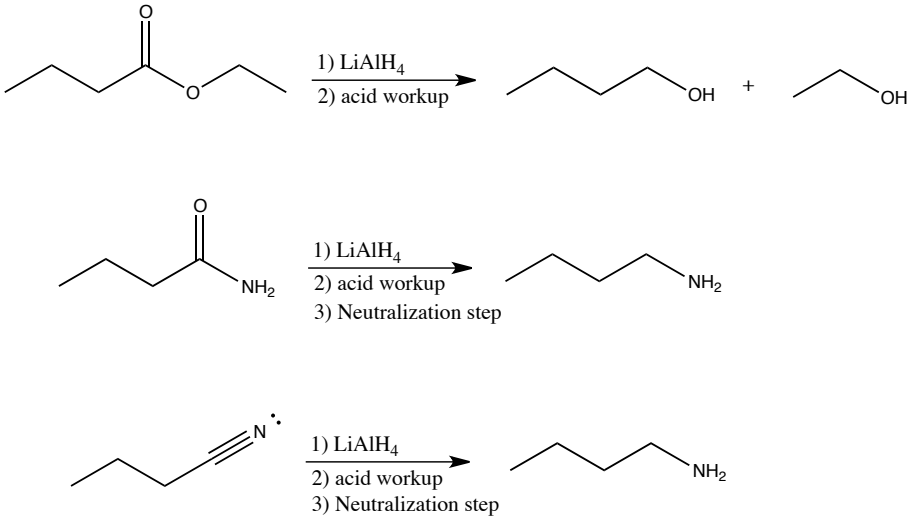
http: www.chem.wisc.edu/areas/clc (Resource page)

Reduction of Derivatives of Carboxylic Acid

Reactions:



The use of lithium aluminum hydride as a reducing agent is versatile due to its strong reducing properties. In the case of the reduction of amides and/or nitriles a third step is required to neutralize the aminium product that was formed when the acid workup step was performed.

The reduction mechanism of the above reactions is very similar to that of the reduction of carboxylic acids with the same reagent.

Nitriles can also be reduced by hydrogen gas in the presence of a nickel-aluminum alloy. Because of the low reactivity of the nitriles high pressures of H_2 and high temperatures are required for the transformation. The intermediate imine formed in this transformation is very reactive and easily reduced to the amine.