Alkyl Halides

Organometallic Reagents

1) Grignard

disconnect between carbons 2 and 3

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2) Organolithium

n-butyl lithium

b) 2
$$H_3C$$
—Li + CuI ether H_3C CuLi + LiI Formation

Remember

pKa of alkyl group is ~50 (very high) so deprotonated alkyl group is VERY basic

$$\begin{array}{ccc} & \oplus & \oplus \\ \mathsf{H_3C-CH_2} & \mathsf{NaBr} \\ & \ominus & \end{array}$$

$$H_3C \stackrel{H_2}{-C} Li \oplus$$

very basic carbons

will react w/ acidic proton like

Not mentioned in class:

Chapter 10.10 Be familiar with terminology, oxidation, and reduction.

In inorganic/general chemistry:

(M=metal)
$$M^0 \longrightarrow M^{2+}$$
 oxidation $M^{2+} \longrightarrow M^0$ reduction

Organic chemistry:

reduction: gain in electron density by carbon oxidation: loss of electron density by carbon

In practice:

oxidation
$$C-O$$
 $C-N$ $C-X$ bonds will form $C-H$ will form $C-O$ $C-N$ $C-X$ bonds will break

A very common example:

$$H_2C=CH_2 \xrightarrow{Pd/C} H_3C-CH_3$$
 Reduction