

# Chapter 15 – An Introduction to Organometallic Compounds

## Lecture Outline

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### Introduction

#### A. Organometallic compounds

Carbon with metal  
- great nucleophile

\* uses 1A, 2A, 3A & transition metals

#### I. Organomagnesium and Organolithium Compounds

#### A. Organomagnesium compounds are the most readily available, easily prepared, and easily handled compounds. *make under normal conditions*

##### 1. Grignard reagents

#### B. They are typically prepared by... *the slow addition of an alkyl, aryl or alkaryl halide to a stirred suspension of a slight excess of Mg metal in an ether solvent*

$\text{Et}_2\text{O}$   
THF

*↑ anhydrous b/c acidic prot will destroy grignard reagent*

##### 1. Bromides and chlorides work well for these reactions

a. Br is the best *iodides*  $\text{diethyl ether } (\text{Et}_2\text{O})$   
- less reactive halide  $\Rightarrow$  THF

b.

##### 2. There's generally an "induction period" in which you're waiting for the reaction to start.

a. You know it starts when you see the magnesium oxidize (there will be a greyish tint or film to the magnesium).

b. Once the reaction starts, it's exothermic

c. Then add the rest of organohalide while gently refluxing.