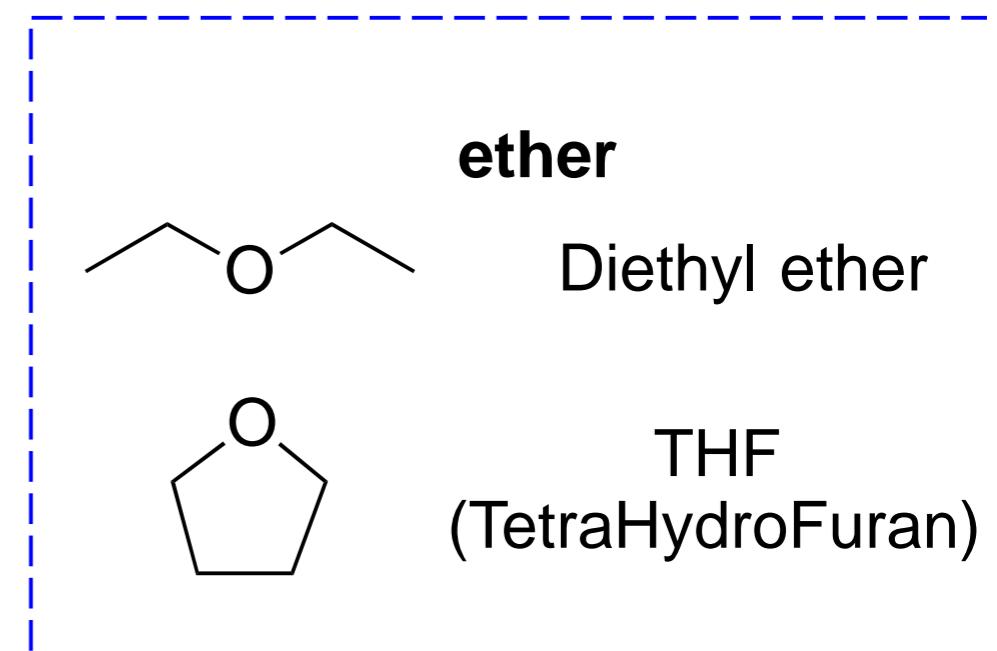
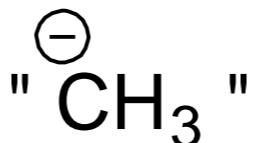
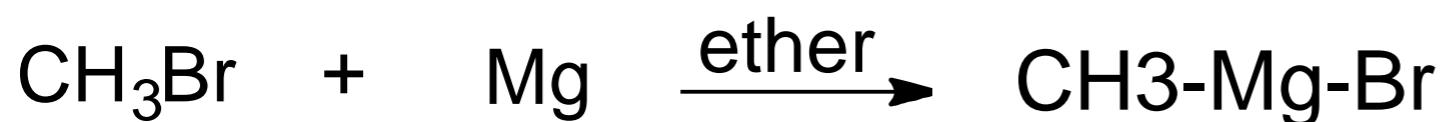
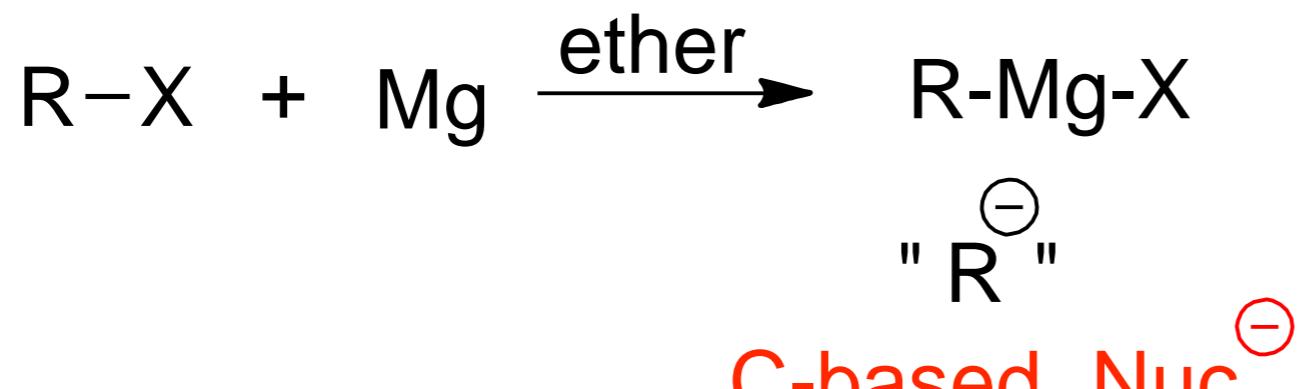


# Week 10

## Grignard Reaction

### Preparation of Triphenylmethanol

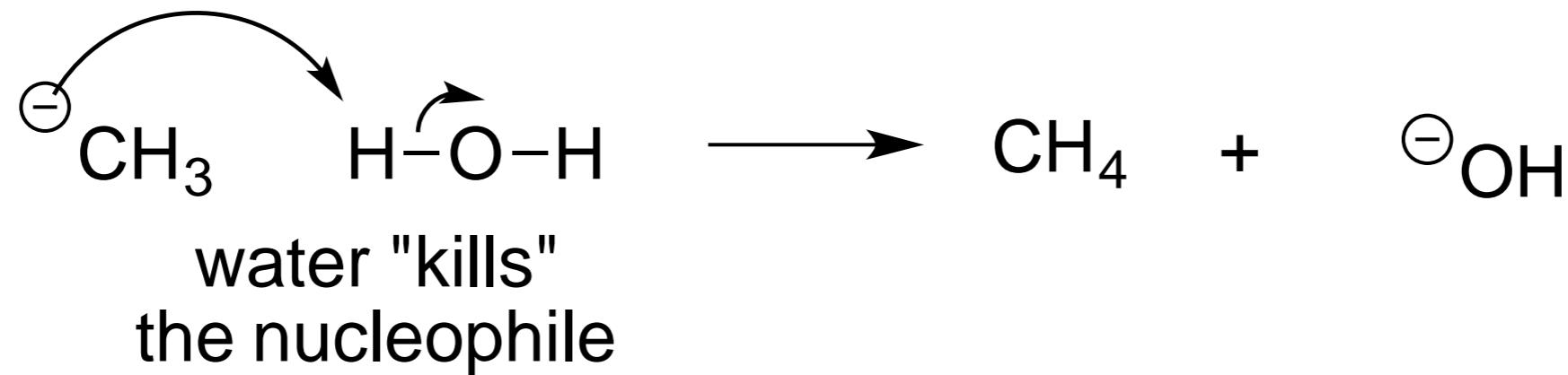
**Grignard Reagent** : Grignard reactions and reagents were discovered by and are named after the French chemist **François Auguste Victor Grignard** (Nobel Prize 1912).



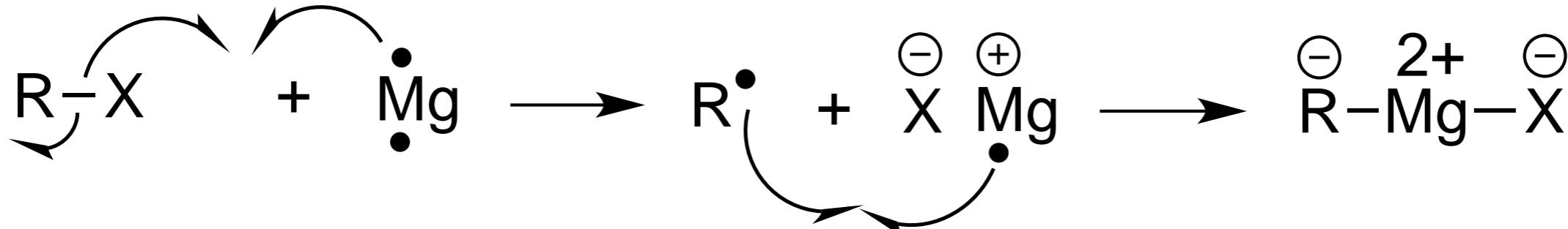
# Grignard Reagent

## Very Moisture Sensitive

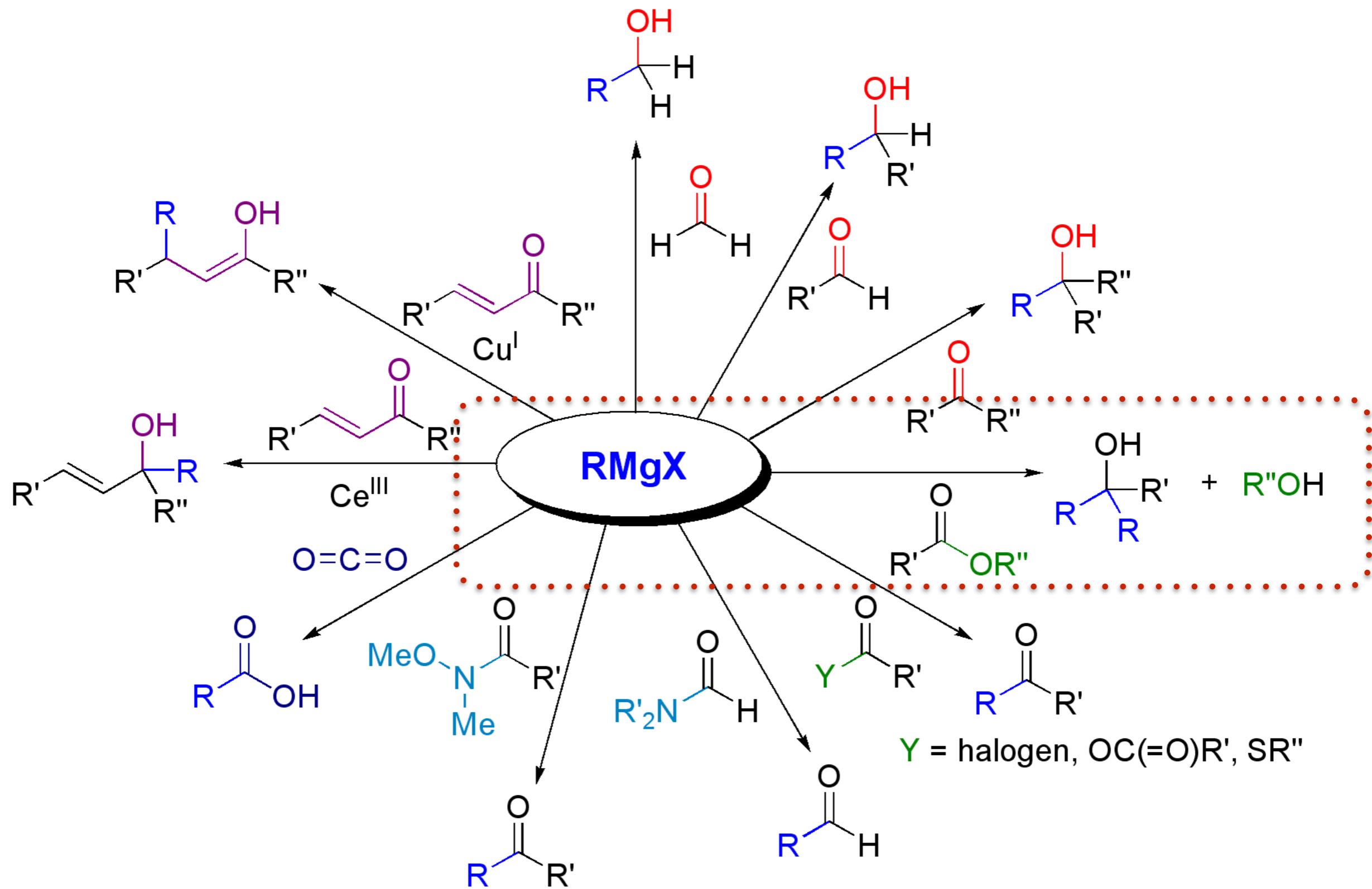
$\text{CH}_3^-$     C-based Nuc $^-$   
Very strong Base     $\xrightarrow{\quad}$     **Very moisture sensitive reagent**



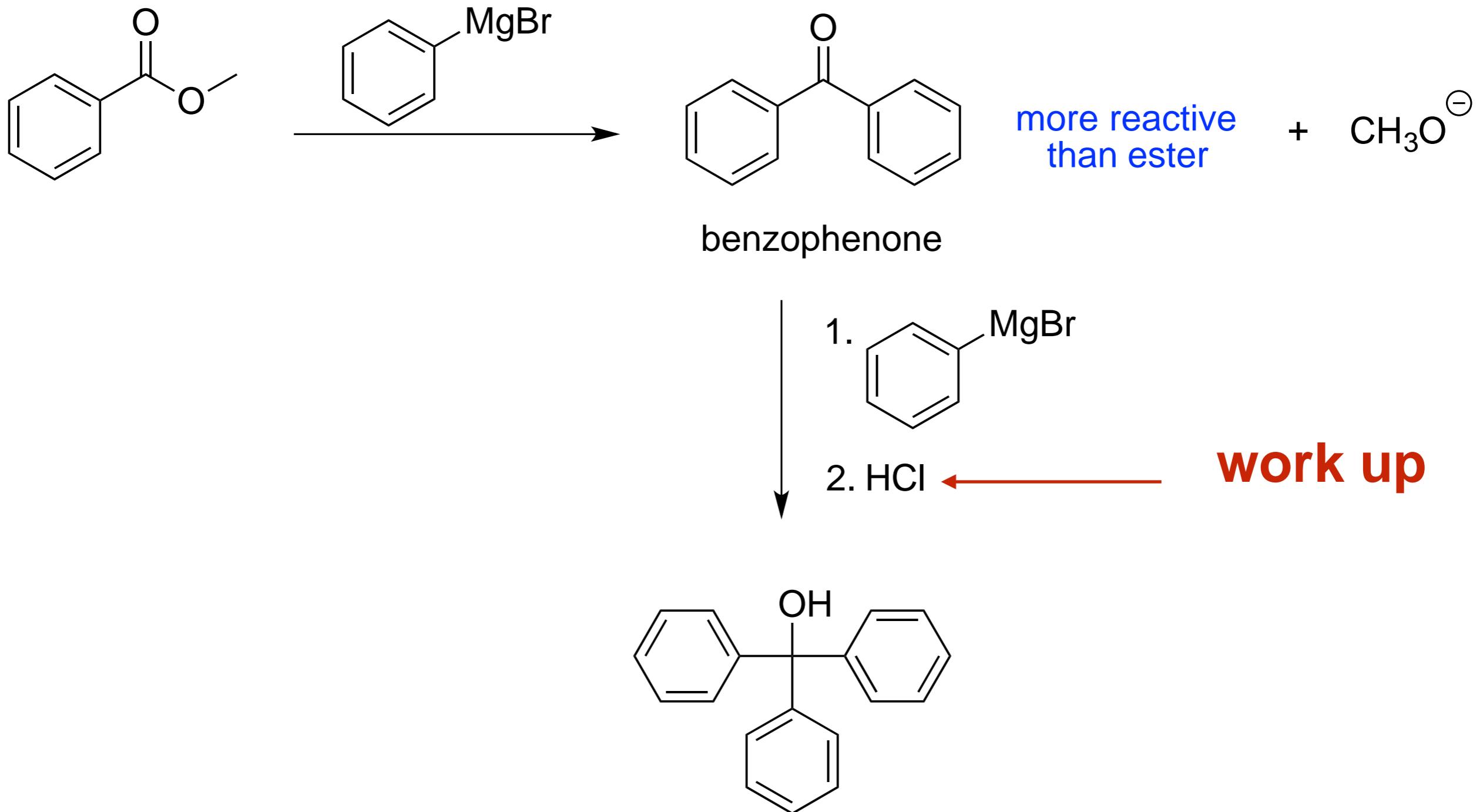
### Mechanism:



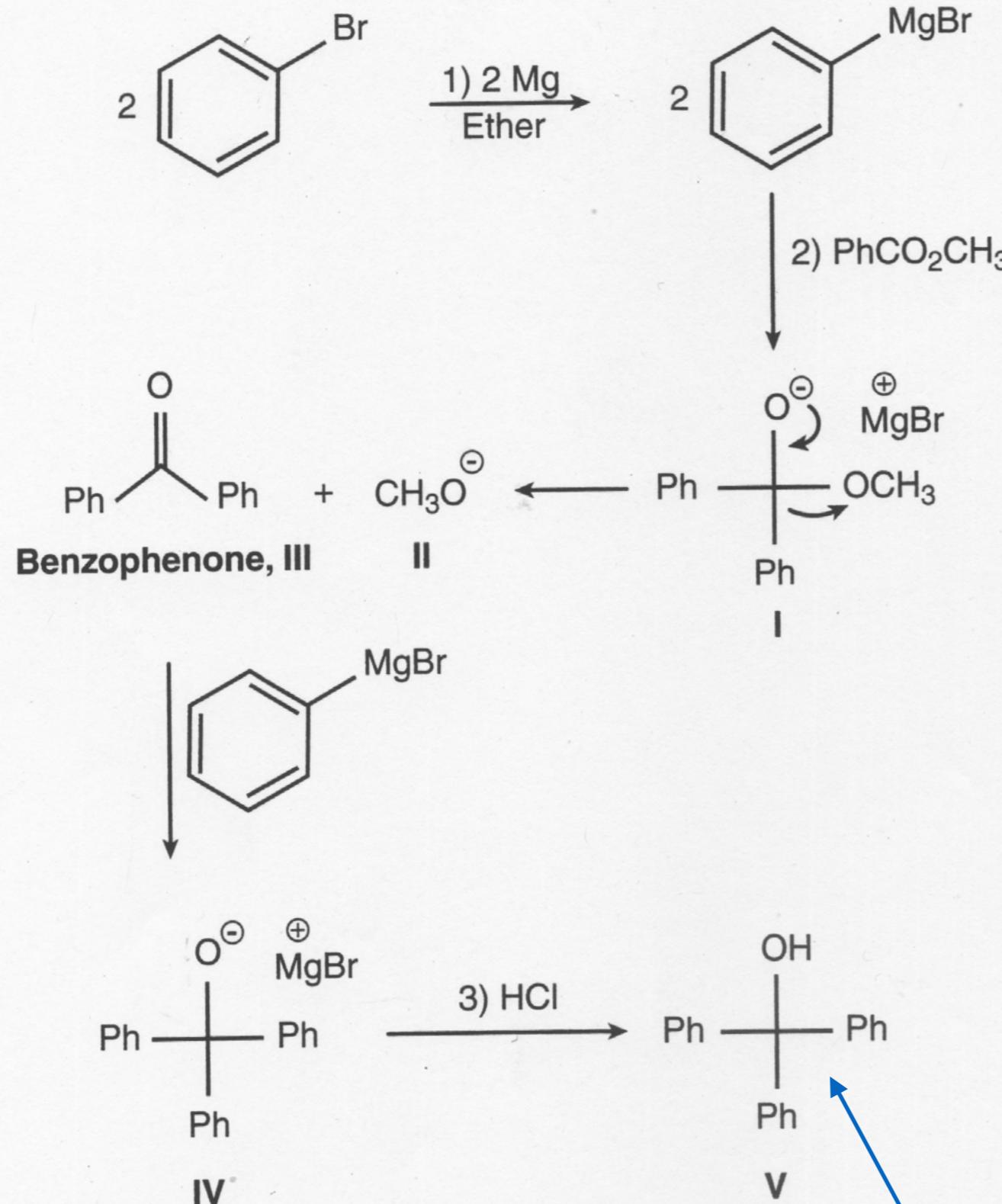
# Grignard Reaction



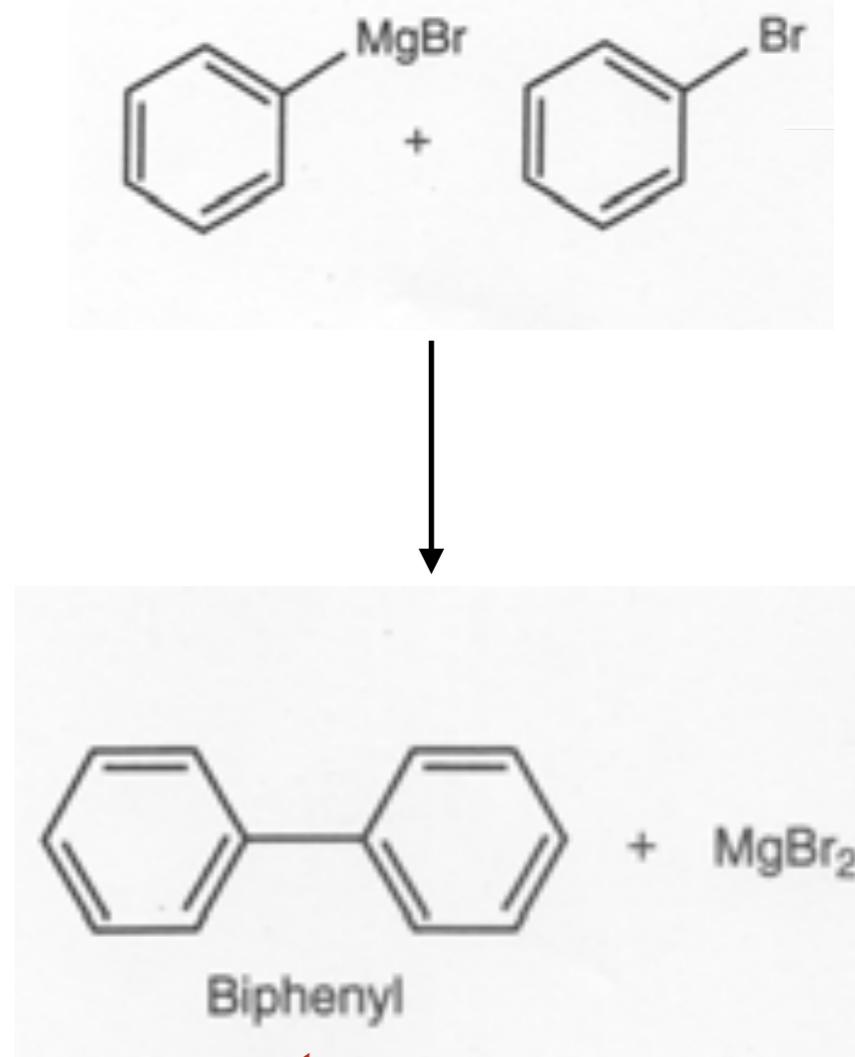
# Preparation of Triphenylmethanol



# Mechanism



## Possible Biproduct



non polar, dissolves in hexane

polar, does not dissolve in hexane

# Reaction Set Up

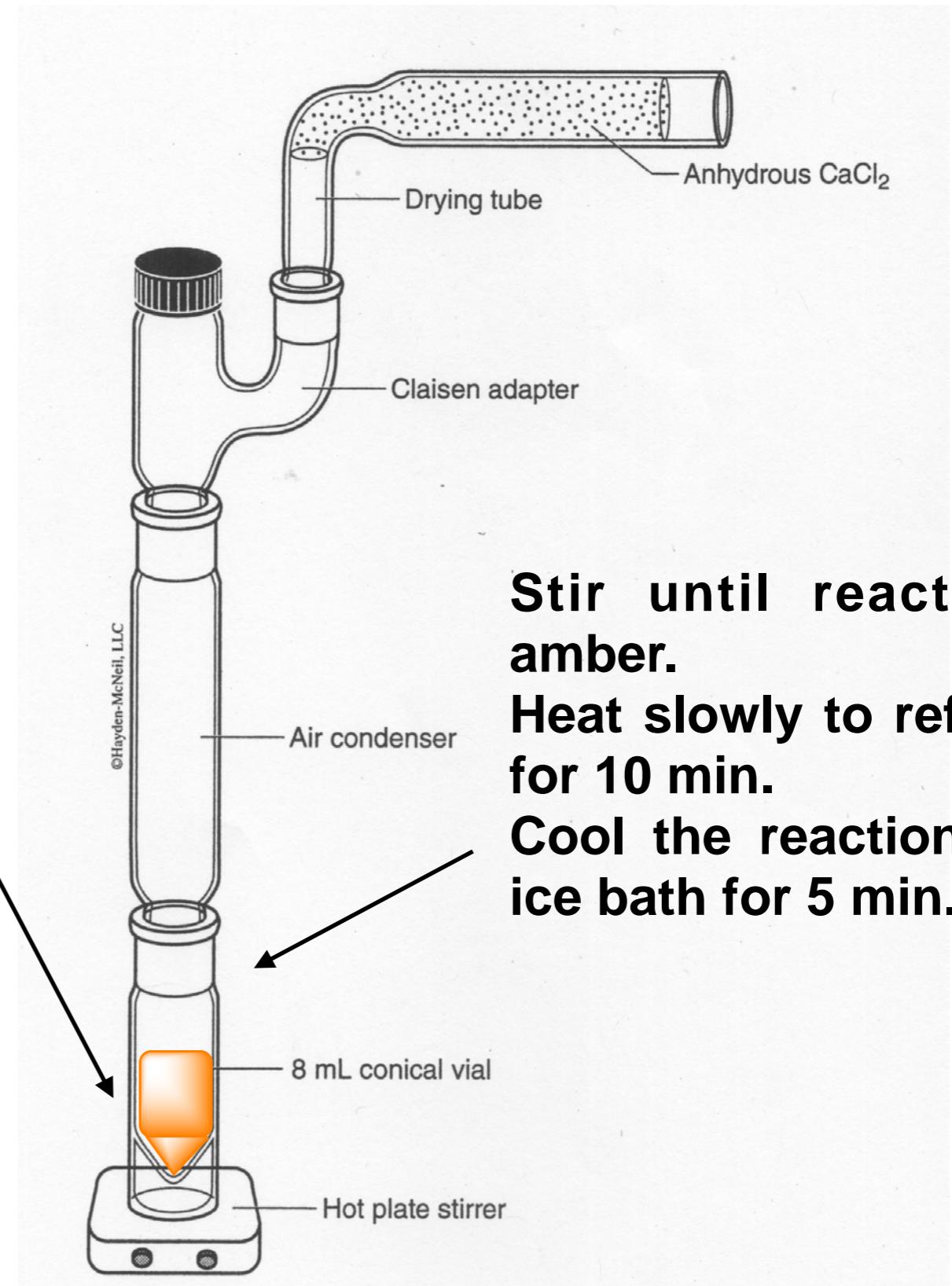
**ALL glassware  
NEEDS to be DRY!!!**

**53 mg Mg turnings**

**+ 2 mL anhydrous ether**

**+ 260  $\mu$ L bromobenzene**

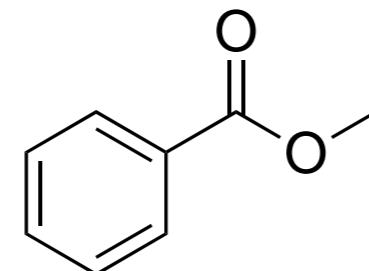
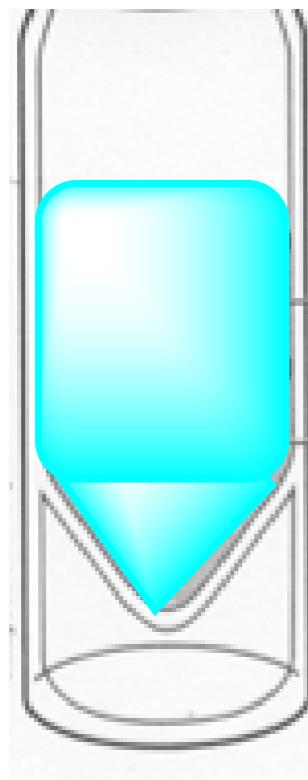
**Use a glass rod to repeatedly hit / press the Mg in ether, to expose fresh metal to start the reaction (a few seconds are enough, watch to see it reacting, when it starts to bubble, assemble the apparatus).**



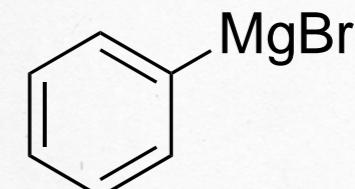
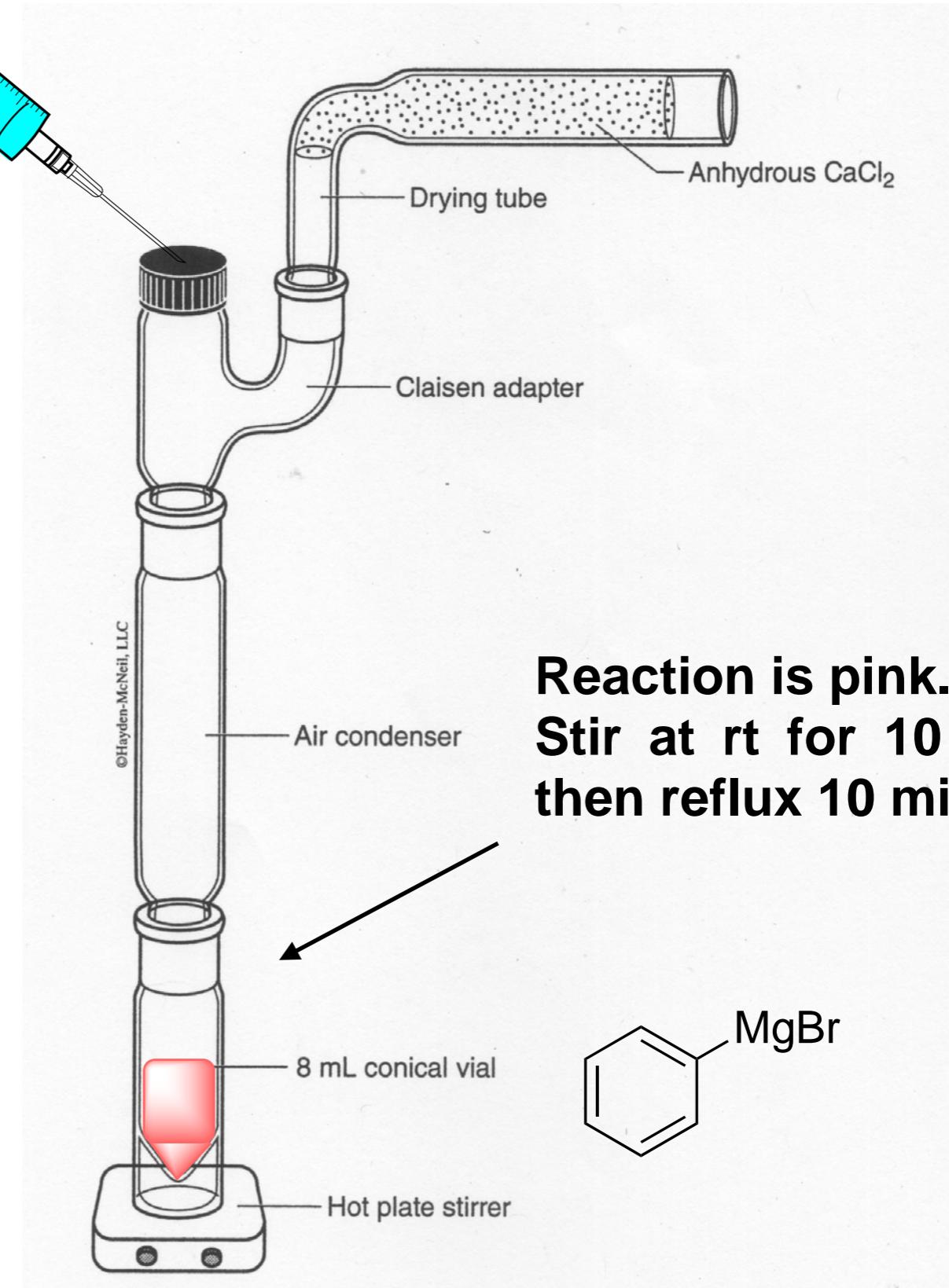
**Stir until reaction amber.  
Heat slowly to reflux for 10 min.  
Cool the reaction in ice bath for 5 min.**

# Reaction Set Up

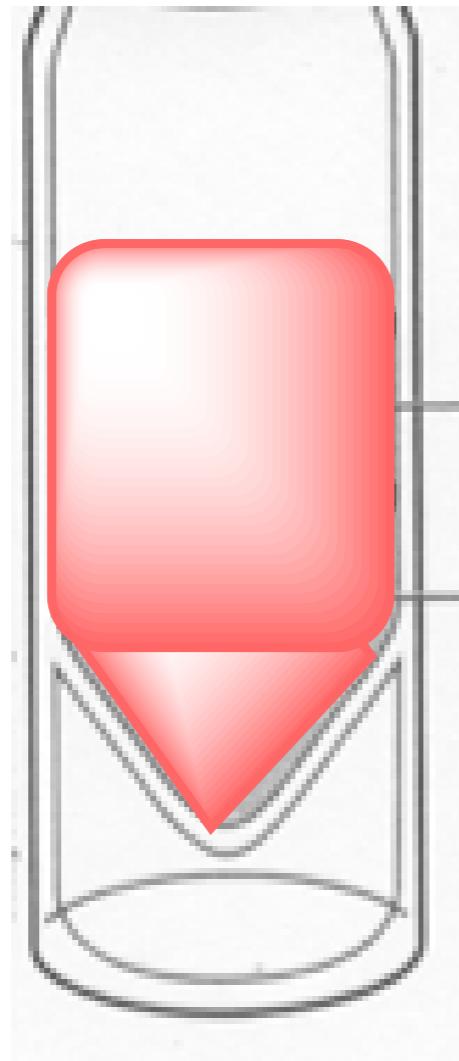
0.125 mL methylbenzoate  
in 1 mL ether



add drop wise  
while stirring



# Reaction Set Up



**Cool at rt  
then  
Add 1 mL dilute HCl**

**if all solids not  
dissolved then add  
0.5 mL HCl extra**

**Stir for 3-4 minutes**

**Close your vial and stop until next time!**

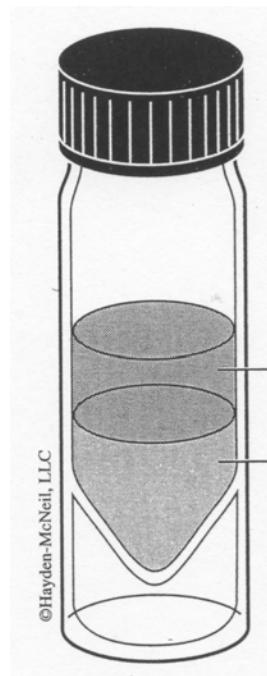
# Reaction Work Up

## Work-up Of Grignard Reaction

Add to your 8-mL conical vial:

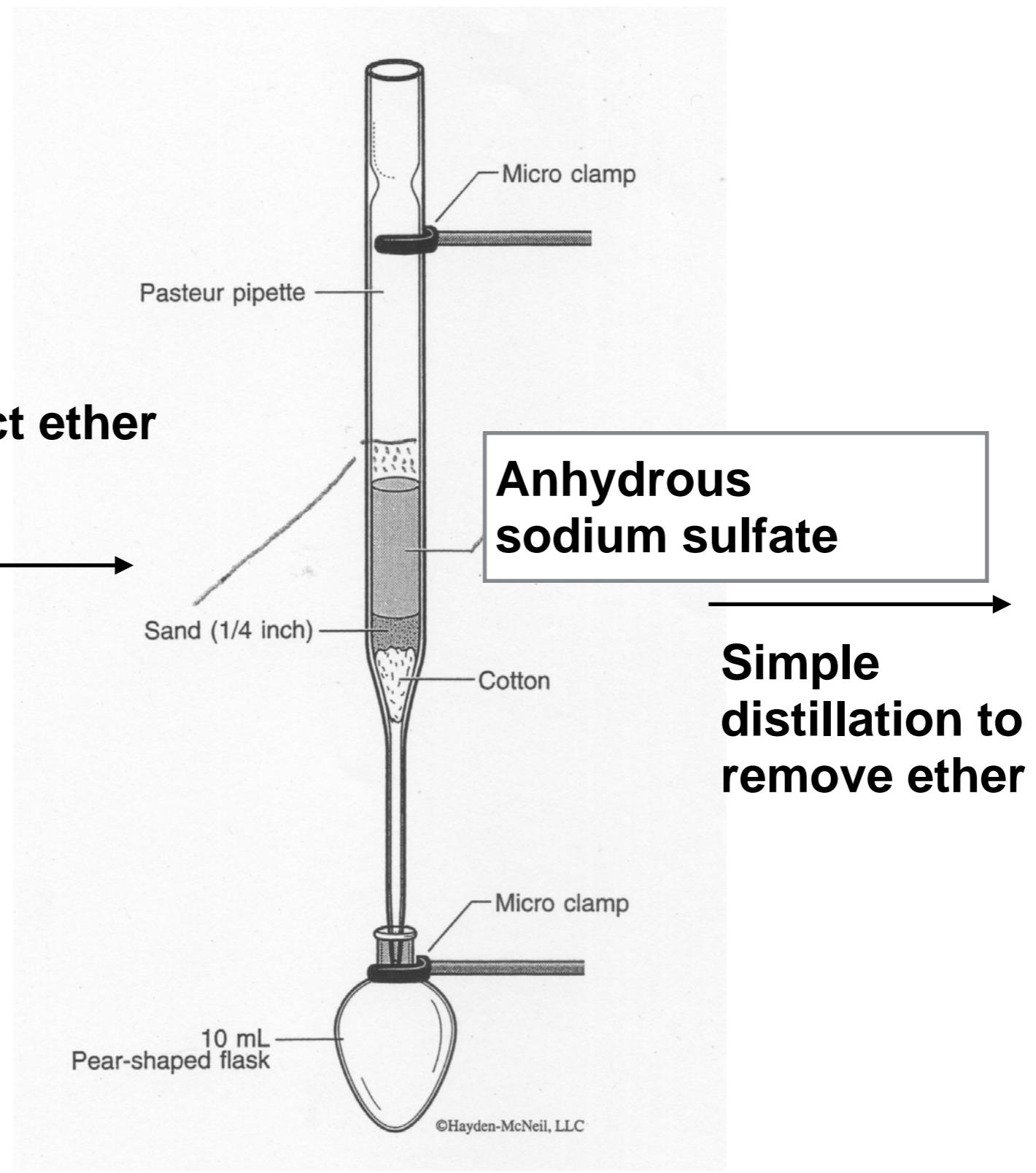
1. 1 mL of distilled water
2. Add 2 mL of ether
3. Vortex for 2-3 minutes with the cap on.

# Reaction Work Up



**Extract ether layer**

ether layer  
water layer



**Remove ether by simple distillation  
Using steam bath as heating source**

**Add 1 mL hexane**

**Collect the triphenylmethanol solids  
By suction filtration**

**Take the melting point**

**Attach your product to your lab report**