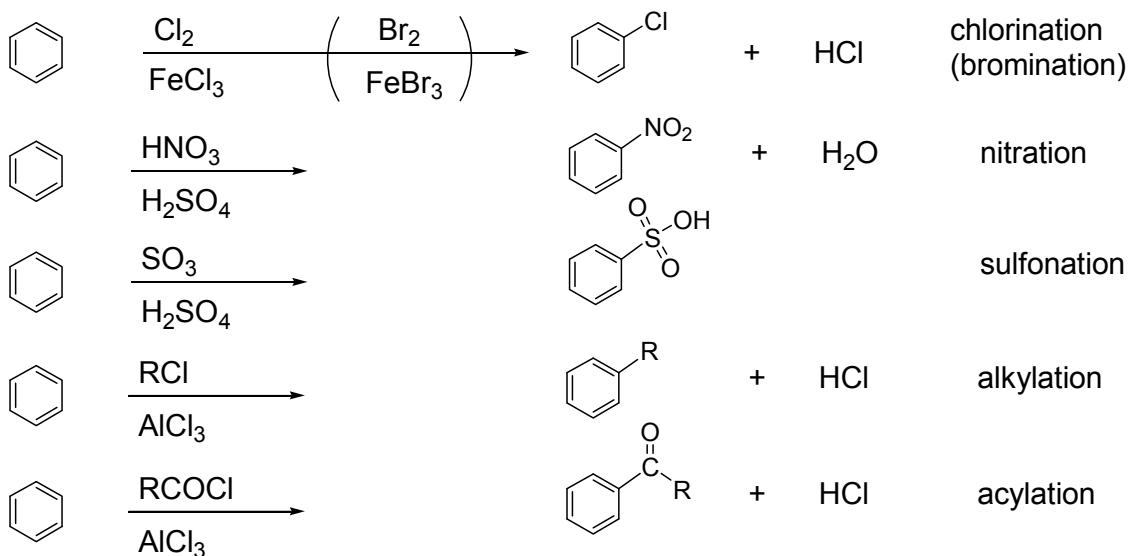
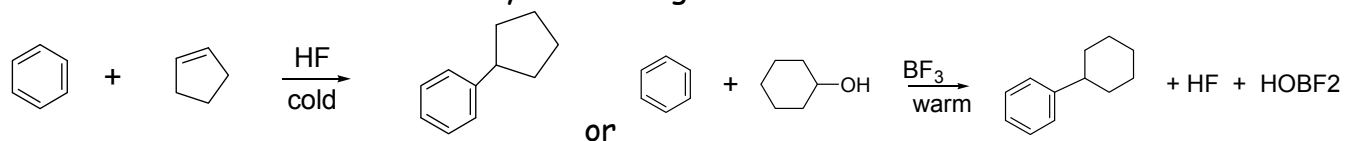


## Reactions of Arenes

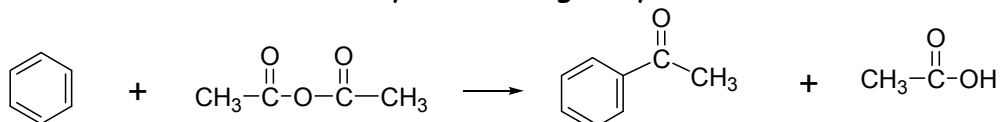
5 common electrophilic reagents: halides, nitronium ion,  $\text{SO}_3$ , alkyl and acyl groups:



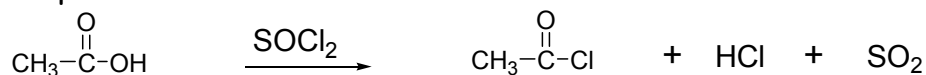
- Other methods for F.C. alkylation using alkenes and alcohols:



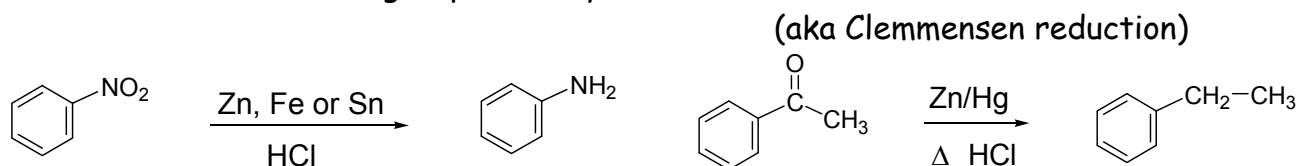
- Other method for F.C. alkylation using anhydrides:



Preparation of acid chlorides:

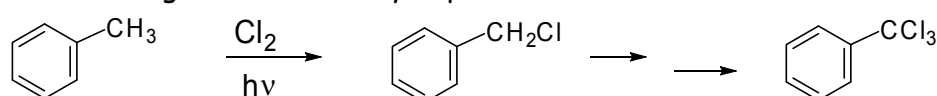


- Reduction of nitro groups and aryl ketones:



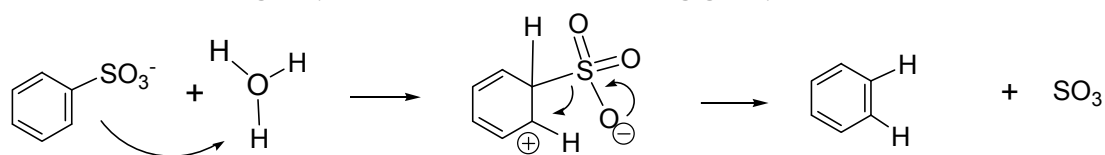
(Nitro groups and aryl ketones can also be reduced by hydrogenation)

- Halogenation of Benzylic position

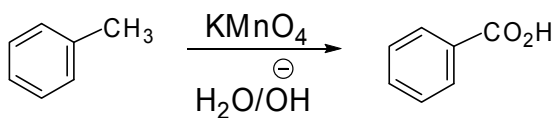


## Reactions of Arenes

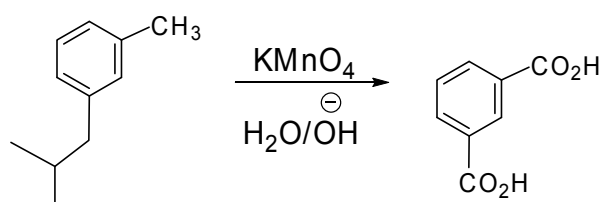
- Reversibility of sulfonation  
(Sulfonate groups can be used as a blocking group then removed)



- Oxidation of Benzylic position



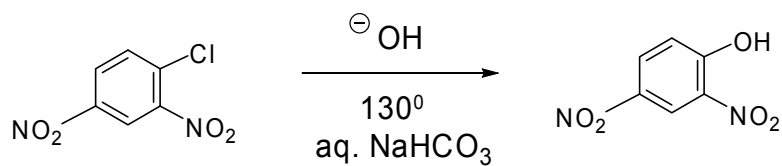
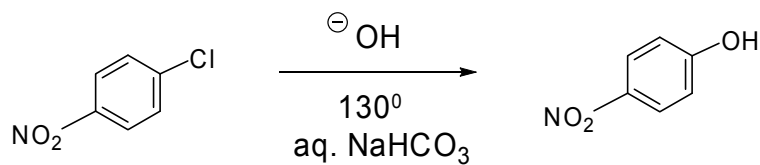
(all benzylic carbons get oxidized)



## Nucleophilic Aromatic Substitution

2 mechanisms:

- Addition/Elimination mechanism



- Benzyne mechanism

