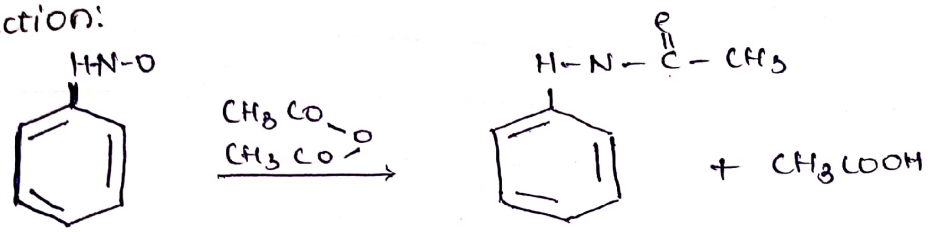
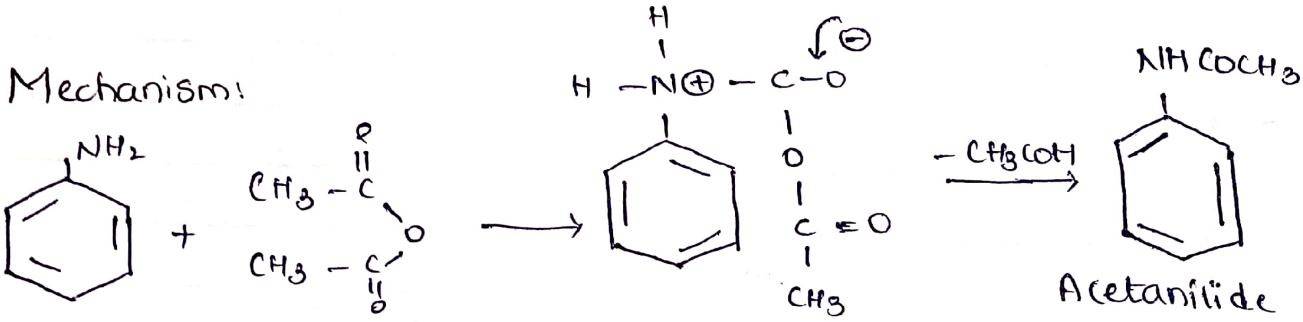
Reaction:



Mechanism:



Preparation of Acetanilide From Aniline

Aim: To prepare Acetanilide from Aniline

Apparatus: Conical flask, Measuring cylinder, distilled water, Rubber cork, ice cubes, filter paper

Chemicals Required:

Aniline - - 10ml

Acetic anhydride $(CH_3(O)_2O$ - 10ml

Glacial acetic acid $(CH_3(OOH)$ - 10ml

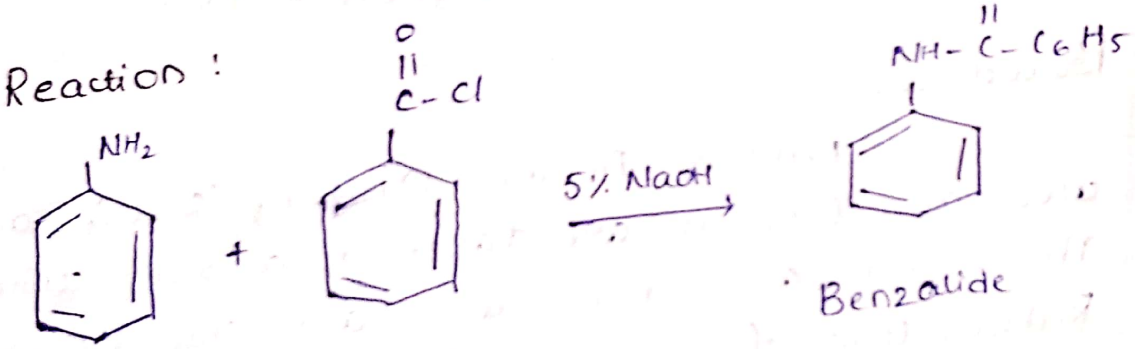
Procedure:

10 ml of Aniline, 10 ml of $(CH_3(O)_2O$ and glacial acetic acid $(CH_3(OOH)$ are taken in a 100ml conical flask. The contents are shaked well and close the conical flask with Rubber cork for 15 mins. Gently using air condensor that the hot mixture is add to 200ml of cold water. The product is filtered and washed with water and dried

Report:

* Appearance : white crystallised
* yield : 4 grams
* Melting point : 114.0°c

Reaction :



Benzalide

Preparation of Benzalide from Aniline

Aim: To prepare Benzalide from Aniline

Apparatus: Conical flask, measuring cylinder, distilled water Rubber cork, ice cubes.

Chemicals Required :

Aniline = 5ml
Benzyl chloride = 7ml
NaOH solution 10% = 5ml

Procedure:

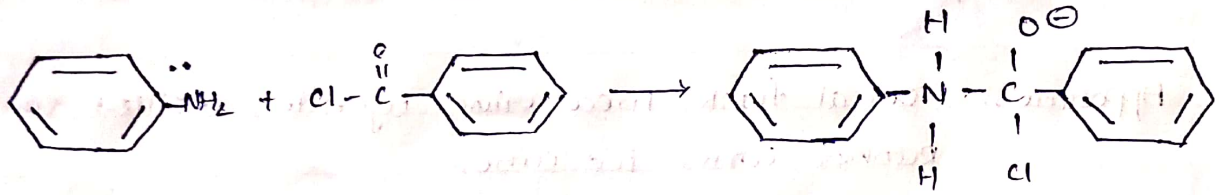
* In a small conical flask, place 10 grams of NaOH pellets and add 22.5 ml of distilled water and stir it well and Hence conc NaOH solution is prepared.
* In a 250ml conical flask, 5 ml of Aniline, 5 ml of 10% NaOH solution and 7 ml of Benzoyl chloride are taken and contents are shaken well till the smell of Benzyl chloride disappear. Generally it takes 15-20min. Now the content is filtered and precipitate product is washed well with the water and dried.

Theory:

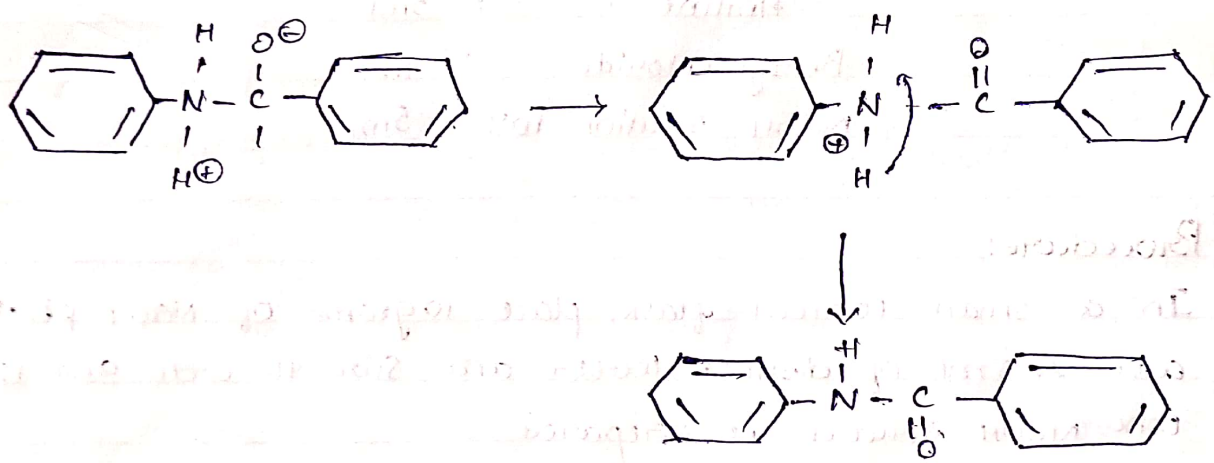
In Section of benzyl moiety instead of an acidic hydrogen atom present in hydroxy (OH) of primary can be termed as Benzoylation the mechanism of benzalylation involves two steps.

Mechanism:

Step -I Attack of Nucleophile



Step -II Generation of Benzalide:



Step - I Attack Of Nucleophile:

In the first step the Nucleophile Aniline Attacks the -C- group of Benzoyl chloride

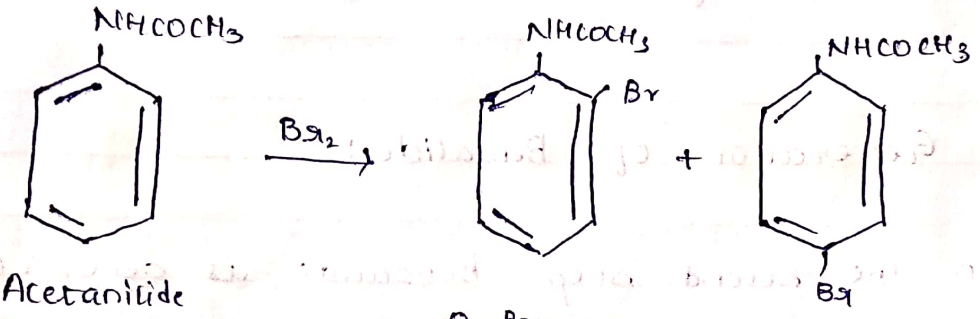
Step - II Generation Of Benzalide:

In the second step, benzalide is generated from the intermediate by subsequent reaction

Report:

* Appearance: White solid
* Yield : 2grams
* Melting Point : 164°c

Reaction:

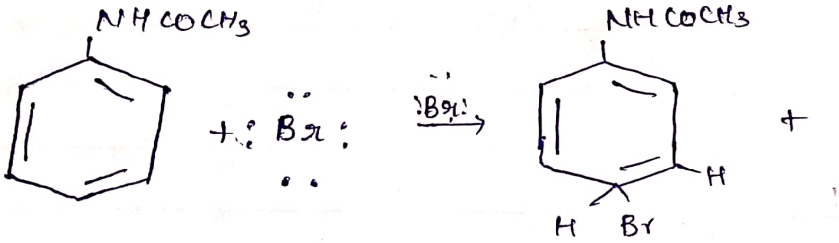


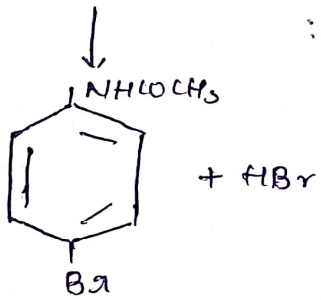
Acetanilide

O-Bromo Acetanilide

p-Bromo Acetanilide

Mechanism:





(p-bromo acetanilide)

Preparation Of P-Bromo Acetanilide from Acetanilide

Aim: To prepare P-Bromo Acetanilide from Acetanilide

Apparatus: Conical flask, measuring cylinder, distilled water, rubber cork, ice cubes.

Chemicals Required:

Acetanilide - 5mg

Glacical CH_3COOH - 14ml

Bromide in CH_3COOH [2ml of Bromine in 10ml of CH_3COOH]

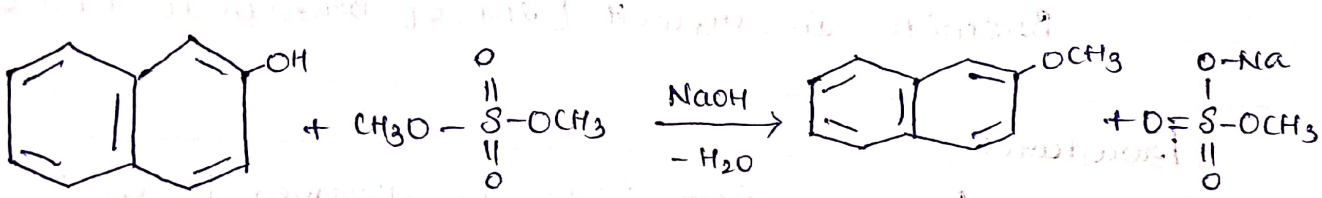
Procedure:

5mgs of Acetanilide is dissolved in glacial CH_3COOH in a 100ml flask. 2ml of Bromide dissolved in 10ml of CH_3COOH. By adding drop by drop with constant Stirring / Shaking the mixture is allowed to stand for 50min and thereafter is allow Shaking. It is filtered and the product is washed with water and dried.

Report:

* Appearance : White crystalline Solid
* Melting point : 170°c
* Yield : 8grams

Reaction:



β-Napthol dimethyl sulphor (Nerolin)

Preparation of β-Napthyl Methyl Ether [Nerolin] from β-Napthol

Aim: To prepare β-Napthyl Methyl Ether (nerolin) from β-Napthol.

Apparatus: Conical flask, measuring cylinders, distilled water, dropper, Rubber cork, ice cubes.

Chemicals Required:

β-Napthol - 2.5 gm
Dimethyl sulphate - 2ml
10% NaOH - 10ml
10ml of water

Procedure:

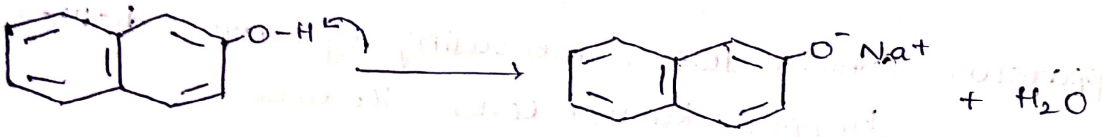
2.5 gms of β-Napthol is dissolved in 10ml of 10% NaOH solution in conical flask filtered with a Rubber stand. The solution is diluted with 10ml of H_2O and 2 ml of $(CH_3)_2SO_4$ is added continuously The bottle is corked and the content are shaked vigorously for 20 min. as per reaction proceeds. The mixture becomes warm and β-Napthyl methyl Ether rapidly seperated as greenish white powder. It is filtered and washed with dil NaOH solution and then washed with water and Dried

Theory:

The Synthesis of Nerolin involves the methylation of β-Napthol to methyl ether in presence of di-methyl Sulphate and NaOH. The mechanism of the synthesis can be

Mechanism

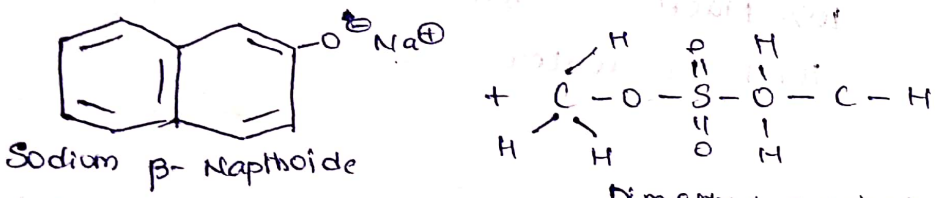
Step -I Generation of Nucleophile



β- Napthol

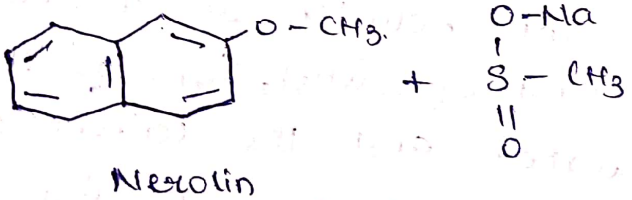
Sodium β- Napthoide

Step - II Attack of Nucleophile:



Sodium β- Napthoide

Dimethyl sulphate



Nerolin

detail in 2 steps.

Step - I Generation Of Nucleophile:

As the reaction of an alcoholic ion ($C(O^-)$) is always going to be much faster than an alcohol (e-OH) with di-methyl sulphate. The Synthesis is initiated by the generation of the Nucleophile.

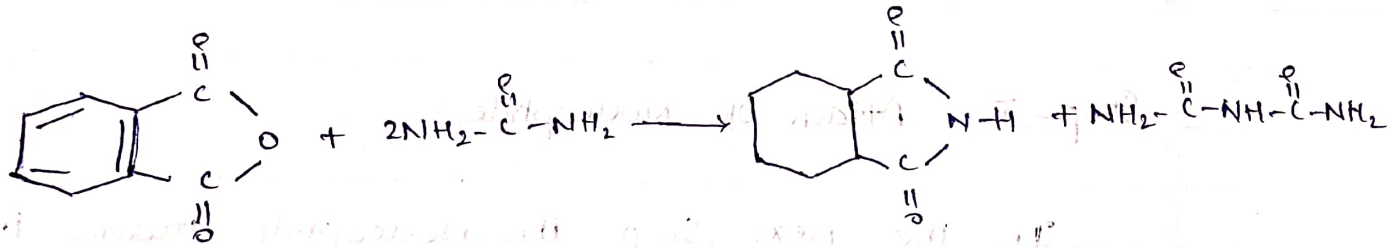
Step - II Attack of Nucleophile :

In the next step the Nucleophile attacks the methyl group from back side i-e via SN_2 mechanism

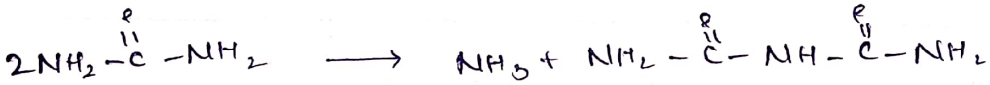
Report:

* Appearance: white crystalline solid
* Melting Point: 73-75°c
* Yield : 1gram

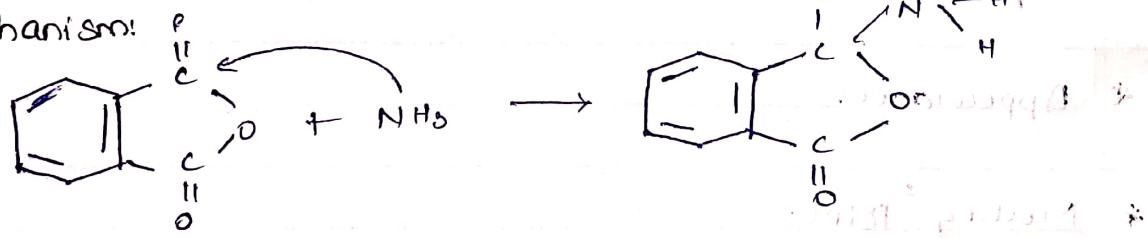
Reaction :



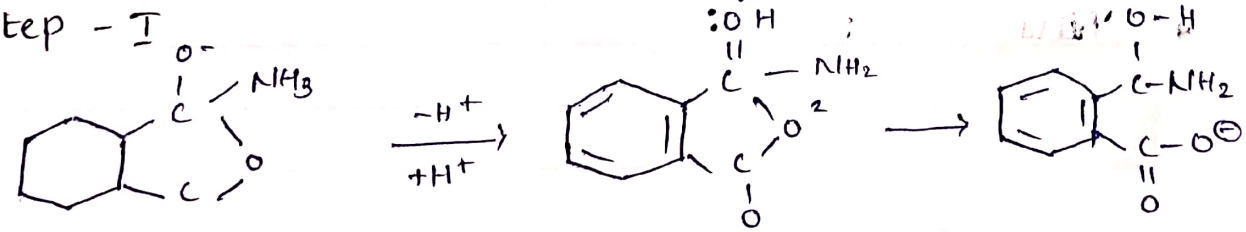
phthalic Anhydride — phthalamide



Mechanism:



Step - I



Preparation of Pthalamide from Pthalic Anhydride

Aim: To prepare pthalamide from pthalic Anhydride

Apparatus: Conical flask, measuring cylinder, distilled water, Rubber cork, dropper, ice cubes, Sand bath

Chemicals Required:

Pthalic Anhydride - 5gms
Urea - 1gm

Procedure:

5 gm of pthalic Anhydride and 1gm of urea are taken in a 100ml flask. The conical flask is heated on a sand bath for 15 minutes. As the Reaction proceeds forming takes place and a solid is formed the contents should be cold to room temperature. Dilute with 10ml of water the contents should be stirred, filtered and dried.

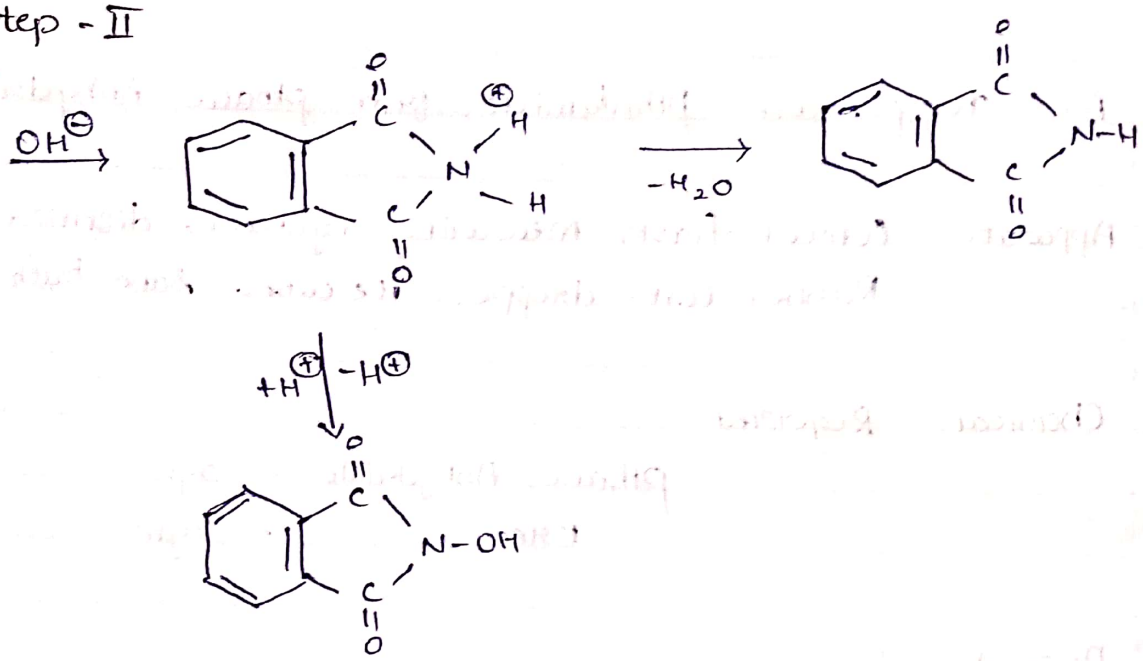
Theory:

The Synthesis of pthalamide from pthalic anhydride involves 2 Steps

Step - I Attack of Nucleophile:

In the first step, the Nucleophile Ammonia attacks one of the $-\overset{O}{\overset{\|}{C}}-$ group of pthalic anhydride.

Step - II



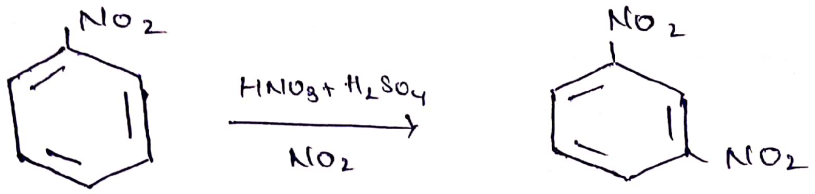
Step - II Generation Of pthalamide:

The Second Step Involves the generation of pthalamide and the formation of the intermediate of various reactants.

Report:

* Appearance: Light yellow solid
* Yield : 1 gram
* Melting point : 238 °C

Reaction:



Nitro benzene (M- Dinitro benzene)

Mechanism:

Preparation of M-Dinitro Benzene from Nitro benzene

Aim: To prepare M-Dinitro benzene from Nitro benzene

Apparatus: Round bottomed flask, Measuring cylinders, distilled water, Rubber cork, ice cubes, glass pieces

Chemicals Required:

Nitro Benzene - 4ml
Conc. HNO_3 - 5ml
Conc H_2SO_4 - 7ml

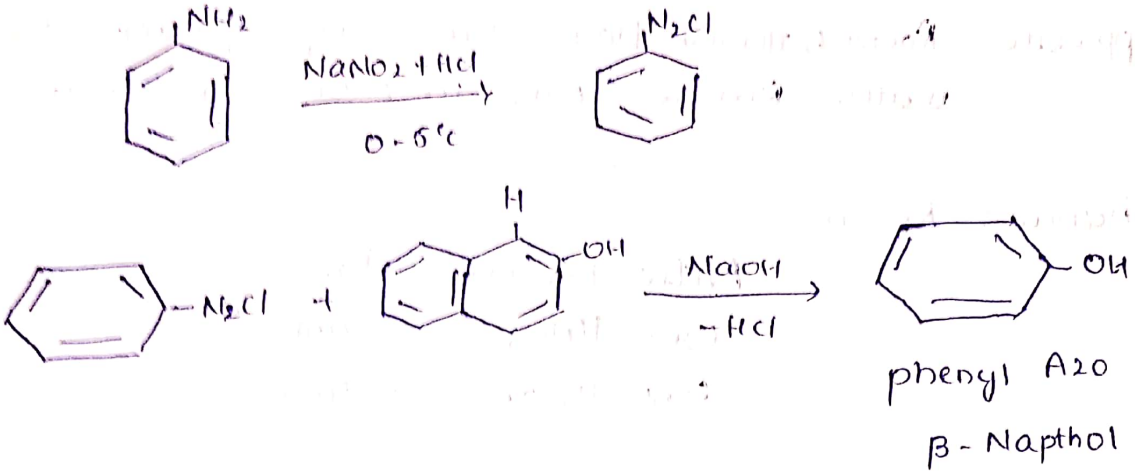
Procedure:

In 250ml round bottomed flask the Nitration mixture is added. Glass pieces added to avoid bumping in the reaction. Reflux is added drop wise drop through the condensor with constant Shaking the mixture is reflex in mixture should be cold and added to 50ml of ice cold water with constant Stirring. The product is filtered and washed with water and dried.

Report:

* Appearance : Yellow solid
* Melting point : 118°c
* Yield : 4 grams

Reaction:



phenyl A20

β-Napthol

Preparation of Phenyl Azo-β-Napthol from Aniline:

Aim: To prepare phenyl Azo-β-Napthol from Aniline.

Apparatus: Conical flask, measuring cylinder, distilled water, Rubber cork, ice cubes, filter paper

Chemicals Required:

Aniline	– 2.5 ml
Conc. HCl	– 8 ml
$NaNO_2$	– 2gm
β-Napthol	– 4gm
NaOH	– 2.5mg

Procedure:

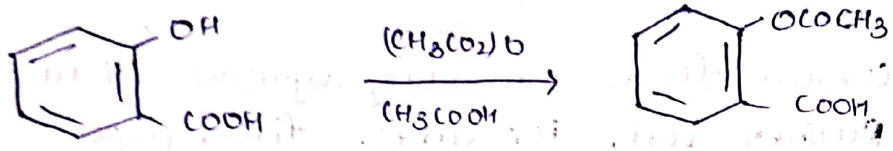
Aniline is dissolved in a mixture of conc. HCl and 10ml of H_2O the solution is cooled in ice at 0.5°c A cooled solution of $NaNO_2$, in 10ml of H_2O is added to this with constant shaking maintaining the temperature below 5°c

To Another flask, β-Napthol is dissolved in a solution i-e NaOH, 250 ml water the solution is cooled in ice at 0.5°c Now add this cool solution with constant Stirring for at least 30 mins maintaing the temperature at 5°c the product is filtered, washed with water and dried.

Report:

* Appearance : Orange-Red crystals
* Melting point: 133°c
* Yeild : 2.86 gms

Reaction:



Preparation of Acetyl Salicylic Acid [Asprin]

Aim: To prepare Acetyl Salicylic Acid (Asprin)

Apparatus: Conical flask, measuring cylinder, distilled water, Rubber cork, ice cubes., filter paper, water bath

Chemicals Required:

Salicylic acid - 2.5 gm
Acetic anhydride - 5 ml
Glacial CH_3COOH - 5 ml

Procedure:

In a 100ml of conical flask Salicydic acid, Acetic anhydride and CH_3COOH are taken. The mixture is heated in a water bath for 20 min. The hot clear solution added to 10ml ice cold water with constant stirring, while precipitate is formed and it is filtered with cold water and dried

Report:

* Appearance: white crystalline powder
* Yield : 1.5 gms
* Melting point: 135°c