List of reactions exhibited by phenols on the basis of reaction by structure of phenol

- Reactions of hydroxy group
- · Reaction of benzene nucleus
- · Reaction characteristics of phenol

List of reactions exhibited by phenols on reactions of hydroxy group

- Sodium metal
- Alkylation
- · Ammonia
- Acetylation
- Benzoylation
- · Phosphorus penta chloride

Expression for reaction of hydroxy group of phenol in sodium metal

$$\overbrace{ \begin{array}{c} OH \\ \\ \hline \\ Na \\ \end{array} } \underbrace{ \begin{array}{c} O\ominus Na\oplus \\ \\ \\ \end{array} } + H_2$$

Reactants for reaction of hydroxy group of phenol in sodium metal

- Phenol
- Sodium Metal

Products for reaction of hydroxy group of phenol in sodium metal

- Sodium phenoxide
- Hydrogen

Expression for reaction of hydroxy group of phenol in alkylation

$$\begin{array}{c|c} C_2H_5\\ \hline\\OH\\ \hline\\ + C_2H_5I \xrightarrow{NaOH}\\ \hline\\ \end{array} + NaI + H_2O \end{array}$$

Reactants for reaction of hydroxy group of phenol in alkylation

- Phenol
- Iodoethane

Products for reaction of hydroxy group of phenol in alkylation

- Phenetole
- Sodium iodide
- Water

Molecular formula of phenetole

Phenyl ethyl ether

Conditions for reaction of hydroxy group of phenol in alkylation

- Sodium hydroxide
- Heat

Expression for reaction of hydroxy group of phenol in ammonia

OH NH2
$$+ NH_3 \xrightarrow{\operatorname{ZnCl_2}} + H_2O$$

Reactants for reaction of hydroxy group of phenol in ammonia

- Phenol
- Ammonia

Products for reaction of hydroxy group of phenol in ammonia

- Aniline
- Water

Conditions for reaction of hydroxy group of phenol in ammonia

· Zinc cloride

Temperature for reaction of hydroxoy group of phenol in ammonia

200 degree celsius

List of reactions on the basis of reagents in acetylation of phenol

- Acetyl chloride
- · Acetic anhydride

Expression for reaction of hydroxy group of phenol in acetyl chloride

$$\begin{array}{c|c} OH & O.COCH_3 \\ \\ + CH_3COCl \xrightarrow{Pyridine} & + HCl \end{array}$$

Reactants for reaction of hydroxy group of phenol in acetyl chloride

- Phenol
- Acetyl chloride

Products for reaction of hydroxy group of phenol in acetyl chloride

- Phenylethanoate
- Hydrochloric acid

Conditions for reaction of hydroxy group of phenol in acetyl chloride

Pyridine

Expression for reaction of hydroxy group of phenol in acetic anhydride

$$OH \qquad O.COCH_3 \\ + (CH_3CO)_2O \xrightarrow{H^+} + CH_3COOH$$

Reactants for reaction of hydroxy group of phenol in acetic anhydride

- Phenol
- Acetic anhydride

Products for reaction of hydroxy group of phenol in acetic anhydride

- Phenyl ethanoate
- Ethanoic / Acidic acid

Conditions for reaction of hydroxy group of phenol in acetic anhydride

Acidic condition / Hydrogen ions

Expression for reaction of hydroxy group of phenol in benzoylation

Reactants for reaction of hydroxy group of phenol in benzoylation

- Phenol
- · Benzoyl chloride

Products for reaction of hydroxy group of phenol in benzolation

Phenyl benzoate

Conditions for reaction of hydroxy group of phenol in benzoylation

Sodium hydroxide

Expression for reaction of hydroxy group of phenol in phosphorus penta chloride

$$\begin{array}{c} OH & Cl \\ \\ + PCl_5 \longrightarrow \\ \end{array} + POCl_3 + HCl \end{array}$$

Reactants for reaction of hydroxy group of phenol in phosphorus penta chloride

- Phenol
- Phosphorus penta chloride

Products for reaction of hydroxy group of phenol in phosphorus penta chloride

- Chlorobenzene
- · Phosphoryl chloride
- Hydrochloric acid