List of reactions given by phenols but not by alcohols

- Acidic character
- Ferric chloride
- Zinc dust

List of acidic properties exhibited by phenols

- Blue litmus to red
- Alkalies to their salt

List of acidic properties not exhibited by phenols

- No Carbonate decomposition
- No Bicarbonate decomposition

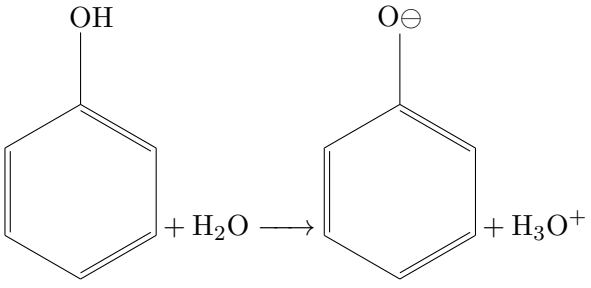
Acidic strength of phenol

Weak

Cause of weak acidic behaviour of phenol

Ionisable polar hydroxyl group

Expression for reaction of acidic disassociation of phenol



Reactants in reaction of acidic disassociation of phenol

- Phenol
- Water

Products in reaction of acidic disassociation of phenol

- Phenoxide ion
- Hydronium ions

Relation of acidic strength of phenol and alcohol

Phenol is more acidic than alcohol

List of causes of more acidic strength of phenol compared to alcohol

- Effect of aryl group
- Effect of resonance of phenol
- Effect of resonance of phenoxide
- Effect of substituents

List of causes of less acidic strength of phenol compared to alcohol

- Effect of alkyl group
- Absence of resonance

List of activities at acidic strength of phenol due to aryl group

- Withdraw electron by aryl
- Decrease electron density at oxygen
- Increase polarity between oxygen and hydrogen

List of activities at acidic strength of alcohol due to alkyl group

- Push electron by alkyl
- Increase electron density at oxygen
- Decrease polarity between oxygen and hydrogen

Representation of resonance structure of phenol

[IM]

- Shifting of lone pairs of electron across the ring
- More electron density at ortho and para position

Representation of resonance structure of phenoxide ion

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- Shifting of negatiave charge as electron gained by oxygen across the ring
- More electron density at ortho and para position

Type of charge developed by oxygen atom at resonance structure of phenol

Partial positive

Type of charge developed by carbons at ortho and para position at resonance structure of phenol

Partial negative

Effect of electron withdrawing substituents at acidic strength of phenol

Increases

Effect of electron releasing substituents at acidic strength of phenol

Decreases

List of electron withdrawing groups as substituents in phenol

- Nitro unit
- Cyanide
- Halogen

List of electron releasing groups as substituents in phenol

- Alkyl
- Alkoxy
- Amino
- Hydroxy

Reactants at reaction of phenol with ferric chloride

- Enols like phenols
- Ferric chloride

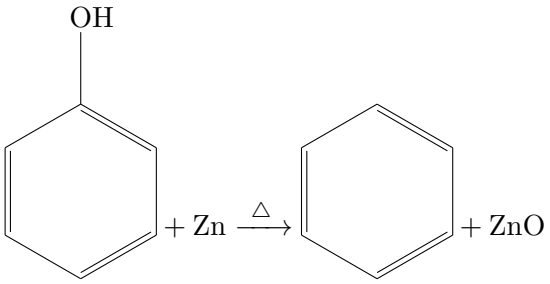
Products at reaction of phenol with ferric chloride

Water soluble coloured complexes

Range of colour of water soluble coloured complex product on reaction of phenol with ferric chloride

Voilet to Red including Green Blue

Expression for reaction of phenol with zinc dust



Reactants for reaction of phenol with zinc dust

- Phenol
- Zinc dust

Products for reaction of phenol with zinc dust

- Aromatic hydro carbon
- Zinc oxide

Condition for reaction of phenol with zinc dust

Heat