

Alcohol Phenol Ether

Alcohols

1. Classification of Alcohols

- Primary (1°) Alcohols
- Secondary (2°) Alcohols
- Tertiary (3°) Alcohols

2. Nomenclature

- IUPAC naming
- Common naming

3. Preparation of Alcohols

- Hydration of Alkenes
- Hydrolysis of Alkyl Halides
- Reduction of Aldehydes, Ketones, Carboxylic Acids, and Esters
- Grignard Reagent Reaction

4. Physical Properties

- Boiling Points
- Solubility
- Hydrogen Bonding

5. Chemical Properties

- Acidic Nature
- Reaction with HX (Halogen acids)
- Dehydration to Alkenes
- Oxidation Reactions
 - Primary to Aldehydes and Carboxylic Acids
 - Secondary to Ketones
 - Tertiary (resistant to oxidation)

6. Uses of Alcohols

Phenols

1. Nomenclature of Phenols

- IUPAC naming
- Common naming

2. Preparation of Phenols

- From Benzene Sulfonic Acid
- From Diazonium Salts
- Cumene Process

3. Physical Properties

- Boiling Points
- Solubility
- Hydrogen Bonding

4. Chemical Properties

- Acidity of Phenols
- Electrophilic Aromatic Substitution

- Nitration
- Halogenation
- Sulfonation
- Reaction with NaOH
- Kolbe's Reaction
- Reimer-Tiemann Reaction
- Oxidation Reactions

5. Uses of Phenols

Ethers

1. Classification of Ethers

- Simple Ethers (Symmetrical)
- Mixed Ethers (Unsymmetrical)

2. Nomenclature

- IUPAC naming
- Common naming

3. Preparation of Ethers

- Williamson Synthesis
- Dehydration of Alcohols

4. Physical Properties

- Boiling Points
- Solubility
- Dipole Moment

5. Chemical Properties

- Reaction with HX (Cleavage of Ethers)
- Electrophilic Substitution (Aromatic Ethers)

6. Uses of Ethers