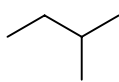


# Principal Functional Groups in Organic Chemistry

Reich

## Hydrocarbons

### Alkanes, Cycloalkanes

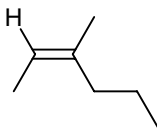


2-methylbutane



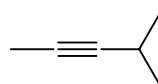
cyclohexane

### Alkenes (olefins)



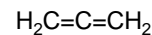
(Z)-3-methyl-2-hexene

### Alkynes (acetylenes)



5-methyl-2-hexyne

### Allenes (cumulenes)

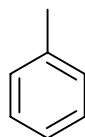


1,2-propadiene  
allene

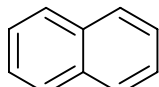
## Aromatics



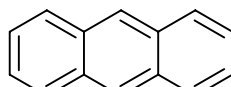
benzene



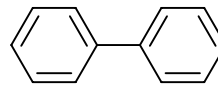
toluene



naphthalene



anthracene



biphenyl

## Halides

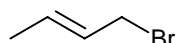
R-X

### Alkyl Halides



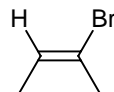
bromoethane  
ethyl bromide

### Allyl Halides



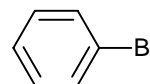
(E)-1-bromo-2-butene  
crotyl bromide

### Vinyl Halides



(E)-2-bromo-2-butene

### Aryl Halides

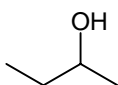


bromobenzene

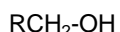
## Alcohols

R-OH

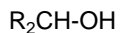
### Alkanols



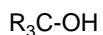
2-butanol  
sec-butyl alcohol



primary (1°)

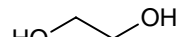


secondary (2°)



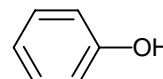
tertiary (3°)

### Glycols



ethane-1,2-diol  
ethylene glycol

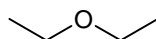
### Phenols



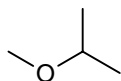
phenol

## Ethers

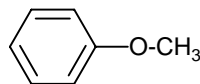
R-O-R'



diethyl ether  
ethoxyethane

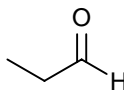
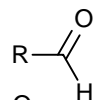


methyl isopropyl ether

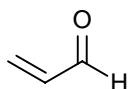


methyl phenyl ether  
anisole

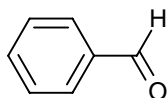
## Aldehydes (Alkanals)



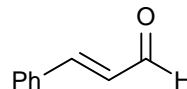
propanal  
propionaldehyde



propenal  
acrolein

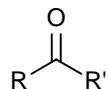


benzaldehyde

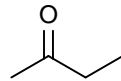


(E)-3-phenylpropenal  
cinnamaldehyde

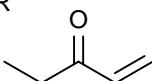
## Ketones (Alkanones)



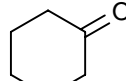
2-propanone  
acetone



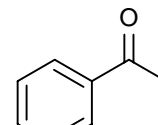
2-butanone  
methyl ethyl ketone



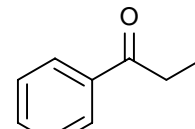
pent-1-ene-3-one  
ethyl vinyl ketone



cyclohexanone

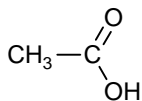


1-phenylethanone  
acetophenone

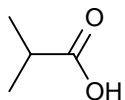


1-phenyl-1-propanone  
propiophenone

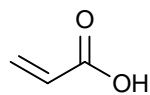
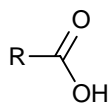
### Carboxylic Acids (Alkanoic Acids)



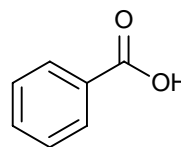
ethanoic acid  
acetic acid



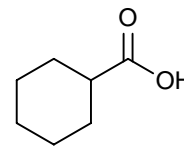
2-methylpropanoic acid  
isobutyric acid



propenoic acid  
acrylic acid

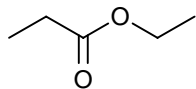


benzoic acid

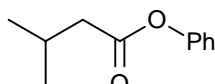


cyclohexanecarboxylic acid

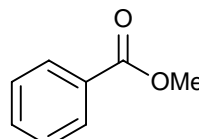
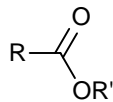
### Carboxylic Esters (Alkyl Alkanoates)



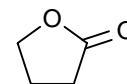
ethyl propanoate  
ethyl propionate



phenyl 3-methylbutanoate  
phenyl isovalerate

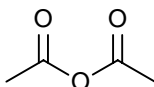


methyl benzoate

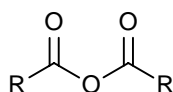


butyrolactone

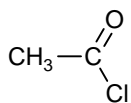
### Carboxylic Anhydrides



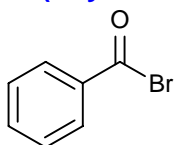
ethanoic anhydride  
acetic anhydride



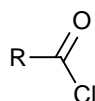
### Carboxylic Acid chlorides (Acyl Halides)



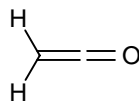
acetyl chloride



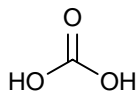
benzoyl bromide



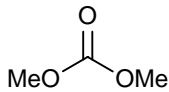
### Ketene



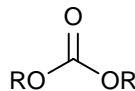
### Carbonates Esters of carbonic acid



carbonic acid



dimethyl carbonate



**See the separate document on Nitrogen containing functional groups**