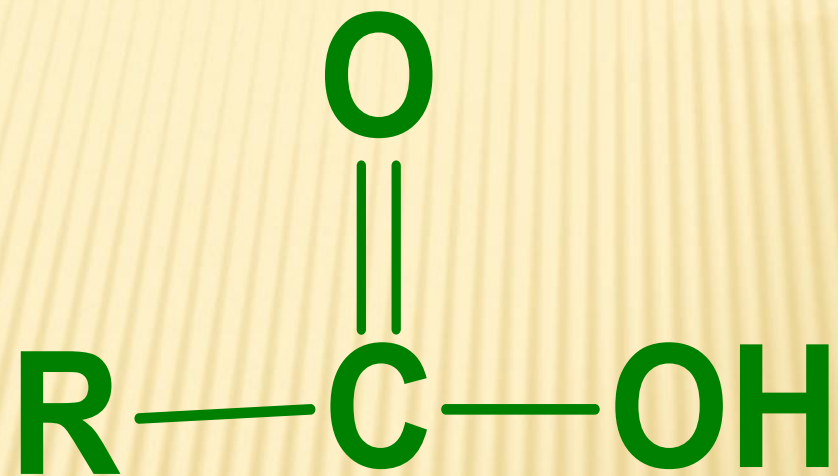
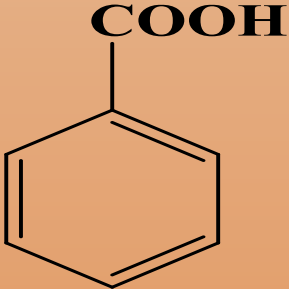
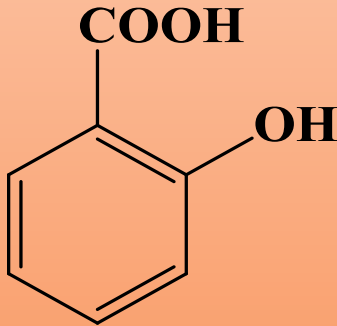
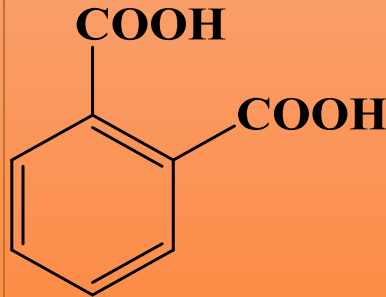


CARBOXYLIC ACIDS



Aliphatic		Aromatic	
Formic acid	HCOOH	Benzoic acid	
$\text{CH}_3\text{OH} \xrightarrow[\text{K}_2\text{Cr}_2\text{O}_7]{[\text{O}]} \text{HCHO} \xrightarrow[\text{H}_2\text{O}_2]{[\text{O}]} \text{HCOOH}$			
Acetic acid	CH ₃ COOH		
$\text{C}_2\text{H}_5\text{OH} \xrightarrow[\text{K}_2\text{Cr}_2\text{O}_7]{[\text{O}]} \text{CH}_3\text{CHO} \xrightarrow[\text{H}_2\text{O}_2]{[\text{O}]} \text{CH}_3\text{COOH}$		Salicylic acid	
Tartaric acid	$\begin{array}{c} \text{HO}-\text{CHCOOH} \\ \\ \text{HO}-\text{CHCOOH} \end{array}$		
Citric acid	$\begin{array}{c} \text{CH}_2\text{COOH} \\ \\ \text{HO}-\text{CCOOH} \\ \\ \text{CH}_2\text{COOH} \end{array}$	Phthalic acid	

Physical properties:

	<i>State</i>	<i>Color</i>	<i>Odor</i>
F.a.	Liquid, mobily, true	Colourless	Pungent odor
A.a.	Liquid, mobily, true	Colourless	Vinegar odor
T.a.	Solid, crystalline or powder	Yellowish white	Characteristic odor
C.a.			
B.a.			
Ph.a.			
S.a.			

Ignition test:

	<i>Inflammability</i>	<i>Change in appearance</i>	<i>Change in color flame</i>
F.a.	Inflammable, non luminous, non smoky	Volatilization	No change
A.a.			
T.a.		Swelling up & charring	
C.a.	Inflammable, non luminous, non smoky	Melting & blackening	
B.a.	Inflammable, luminous, smoky	Melting	
Ph.a.			
S.a.			

Ignition test:

	<i>Change in odor</i>	<i>Residue</i>
F.a.	No change	No residue
A.a.		
T.a.	Burnt-sugar odor 	Black residue
C.a.		Yellow stain
B.a.	Suffocating odor	No residue
Ph.a.		
S.a.	Phenolic odor	

Acid– base test:

Acidity test:

Na_2CO_3 solution + acid $\longrightarrow$ Effervescence

Solubility or Miscibility:

	In H ₂ O	L. P.	Acidity test
F.a.	Miscible in H ₂ O	Change blue L.p. ↓ red	Effervescence 
A.a.			
T.a.	Soluble in H ₂ O		
C.a.			
B.a.	Insoluble in H ₂ O & dil. HcL but <i>soluble in 10% NaOH</i>		
Ph.a.			
S.a.			
Comment:	<i>All the compounds are Strong acid</i>		

Preliminary test:

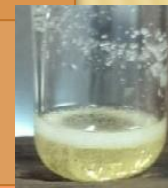
<i>Soda lime test</i>	<i><u>On cold:</u></i>	<i><u>On hot:</u></i>
F.a.	Not done (only for solid)	
A.a.		
T.a.	No reaction	Burnt – sugar odor
C.a.		
B.a.	No reaction	Benzene odor
Ph.a.		
S.a.	No reaction	Phenolic odor

Preliminary test:

<i>30% NaOH</i>		<i><u>On cold:</u></i>	<i><u>On hot:</u></i>	<i>FeCl₃</i>
F.a.	No reaction			No reaction with all
A.a.				
T.a.	No reaction	Burnt – sugar odor		
C.a.				
B.a.	No reaction	Benzene odor		
Ph.a.				
S.a.	No reaction	Phenolic odor		

Preliminary test:

<i>Conc. H_2SO_4</i>	<u><i>On cold:</i></u>	<i>On hot:</i>
F.a.	Effervescence	Not done
A.a.		
T.a.	No reaction	Effervescence + heavy charring
C.a.	No reaction	Effervescence + yellow color
B.a.	No reaction	
Ph.a.		
S.a.		



General test:

Neutral FeCl₃



Acid + NH₄OH $\xrightarrow{\triangle}$ *[until complete disappearance of ammonia odor]*
wait 2– 3' cooling $\xrightarrow{\quad}$ + 2-3 drops N. FeCl₃ $\longrightarrow$

F.a.

Blood red color – reddish brown color

A.a.

T.a.

Lemon yellow color

C.a.

B.a.

Buff ppt

Ph.a.

S.a.

No need to use NH₄OH with acid ***JUST***
Acid + H₂O + N. FeCl₃ $\longrightarrow$ **Violet color**