

# Index

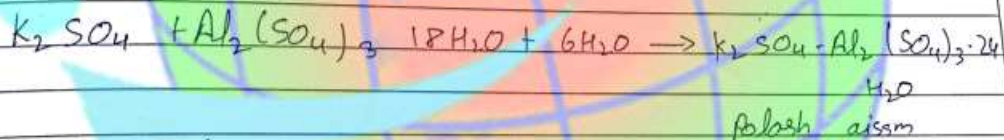
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# Experiment No. 1

Aim:- To Prepare a pure sample of potash alum  $[K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O]$

Theory:- Potash alum is prepared by dissolving an equimolar mixture of hydrated aluminium sulphate and potassium sulphate in minimum amount of water containing a little sulphuric acid and then subjecting the resulting solution to crystallization when octahedral crystals of potash alum separate out.



Requisite materials:- Two beakers (250 ml), china dish, funnel, funnel stand, glass rod, wash bottle, tripod stand and wire gauze, potassium sulphate, aluminium sulphate and dil  $H_2SO_4$

Procedure:- Take a 250 ml beaker washed it with water and then transferred 2.5 g potassium sulphate crystals to it. Added 20 ml of water. Stirred to dissolve the crystals warmed is required

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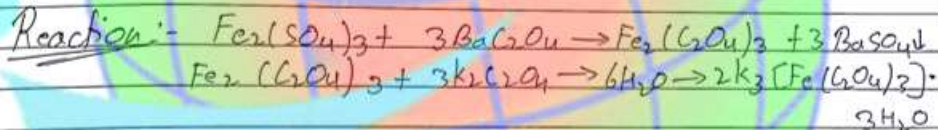
- 2) one will take other 25ml beaker wash it with crystals and then powdered 10g aluminium sulphate 1cm of dil  $H_2SO_4$  to prevent hydrolysis of aluminium sulphate heated for about 5 min
3. Mixed the two solution in a china-dish and placed the china dish on a wire gauze placed over a burner. stirred the solution with a glass rod. concentrated the solution till crystallization point is reached. placed the dish over a beaker containing cold water.
4. Brown crystals of basic alum is separated out. Decant off the mother liquor and washed the crystals with a small quantity of ice cold water.
5. Dried the crystals by placing them between filter paper.

Observations :-  
Weight of crystals obtained = 12.5g  
Expected yields = 12.5g  
Colour of the crystals = colourless  
Shape of the crystals = octahedral

## Experiment No. 2

Aim:- To prepare a pure sample of the complex potassium trioxalatoferate (III)  $K_3[Fe(C_2O_4)_3] \cdot 3H_2O$ .

Theory:- The compound can be prepared by reacting ferric sulphate with barium oxalate which results in formation of ferric oxalate, this soluble ferric oxalate, in the presence of excess oxalate ion (obtained by reacting ferric oxalate with potassium oxalate) yields the trioxalatoferate (III).



Apparatus:- china dish (10cm diameter) watch glass, beamer, water bath, 500ml beaker, buchner funnel, filter paper, water suction pump vacuum desiccator etc.

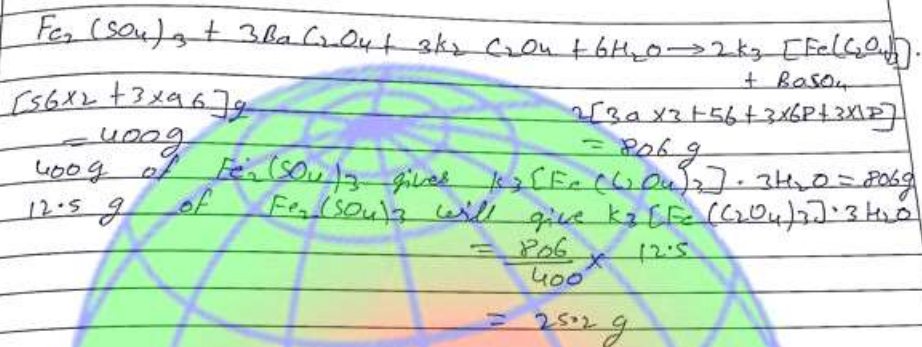
Requirements:- Ferric sulphate crystals = 12.5 gm  
 Oxalic acid = 25 gm  
 Potassium oxalate, monohydrate = 13.6 gm

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- Procedure:- Placed 12.5 g of ferric sulphate crystals, 25g of potassium oxalate and 13.6g of potassium oxalate monohydrate in a 500ml beaker.
1. Added 200 ml water and stirred to dissolve the crystals.
  2. Digged the above mixture for 1hr on water bath.
  3. The reaction mixture shows formation of white ppt. Filterate the mixture on Buchner funnel using water suction pump.
  4. Washed the precipitate three times with water.
  5. Collected the filtrate in a china dish and evaporate it to half the volume by slow heating.
  6. Allowed the solution to cool slowly keeping it undisturbed.
  7. Light green crystals of potassium ferrioxalate separate out. Decant off the supernat liquid and transferred the crystals on filter.
  8. Dried the crystals and recorded the yield.
  9. Weighed the crystals and recorded the yield.

### Calculation of Percentage Yield:-

The percentage yield can be calculated as follows:-



Theoretical yield = 25.2 g

Experimental yield = 12.6 g

Percentage yield =  $\frac{12.6}{25.2} \times 100 = 50\%$

Precautions:- Do not reduce the volume of filtrate more than half of its original

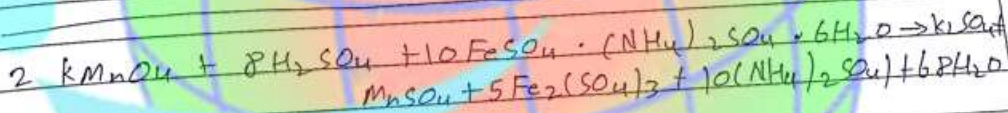
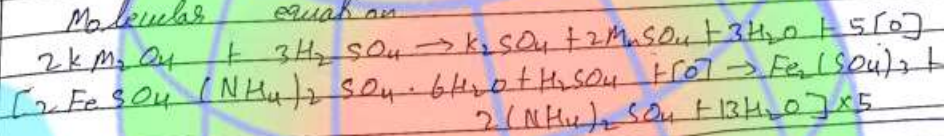
2. Do not heat the filtrate strongly otherwise the crystals are not obtained in proper shape

## Experiment No. 3

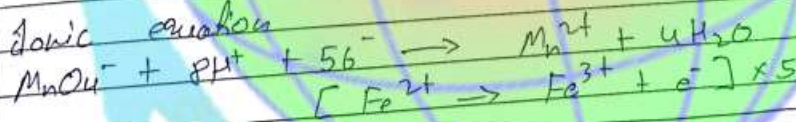
Aim:- To prepare m/o solution of ferrous ammonium sulphate (Mohr's salt). Using this solution find out the molarity and strength of the given  $\text{KMnO}_4$  solution.

### Chemical Equations:-

Molecular equation



Ionic equation



Apparatus:- Pipette, titration flask, burette and test tubes

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Chemical Required:- Mohr's salt,  $KMnO_4$ , water, dilute sulphuric acid, indicator

Indicator:-  $KMnO_4$  is self indicator

End Point:- colourless to permanent pink colour ( $KMnO_4$  in burette)

- Procedure:- At first, we prepare 250 ml of m/v of Mohr's salt solution by dissolving 4.0 g of Mohr's salt in water. Then we rinse the pipette with the m/v Mohr's salt solution and pipette out 25 ml of it in a washed titration flask.
- we rinse the burette and fill it with the given  $KMnO_4$  solution
  - we add one to two solution one test tube (in 20 ml) full of dil.  $HCl$  (2N) to the solution in the flask
  - Then we note the initial reading of the burette
  - Now we add  $KMnO_4$  solution from the burette till a permanent light pink colour is imparted to the solution on addition of last single drop of  $KMnO_4$ . We note the final reading of the burette.

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Chemical Required:- Mohr's salt,  $KMnO_4$ , water, dilute sulphuric acid, indicator

Indicator:-  $KMnO_4$  is self indicator

End Point:- colourless to permanent pink colour ( $KMnO_4$  in burette)

- Procedure:- At first, we prepare 250 ml of m/v of Mohr's salt solution by dissolving 4.9 g of Mohr's salt in water. Then we rinse the pipette with the m/v Mohr's salt solution and pipette out 25 ml of it in a washed titration flask.
- we rinse the burette and fill it with the given  $KMnO_4$  solution
  - we add one test tube (in 20 ml) full of dil.  $HCl$  ( $\approx 4N$ ) to the solution in the flask
  - Then we note the initial reading of the burette
  - Now we add  $KMnO_4$  solution from the burette till a permanent light pink colour is imparted to the solution on addition of last single drop of  $KMnO_4$ . We note the final reading of the burette.

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Observations:-

weight of Mohr's salt = 4.90 g  
 volume of Mohr's salt prepared = 250 ml  
 molarity of Mohr's salt solution =  $M/20$   
 volume of Mohr's salt taken for each titration = 25 ml

S.No	Volume of Mohr's salt	Burette Reading			Average
		Initial	Final	Diff.	
1	25	0.7	25.8	25.2	25
2	25	0.6	25.8	25.2	
3	25	0.3	25.3	25	
4	25	0.5	25.5	25	
5	25	0.2	25.2	25	

Concordant Volume = 25 ml

Calculations:-

- a) molarity of  $KMnO_4$  solution  
 From the balanced chemical equation, it is clear that 2 moles of  $KMnO_4$  reacts with 10 moles of Mohr's salt.

$$\frac{M_{KMnO_4} \times V_{KMnO_4}}{M_{\text{Mohr's salt}} \times V_{\text{Mohr's salt}}} = \frac{2}{10} = \frac{1}{5}$$

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$$\frac{M_{\text{KMnO}_4} \times 25}{\frac{1}{20} \times 25} = \frac{2}{10}$$

$$\Rightarrow M_{\text{KMnO}_4} \times 20 = \frac{2}{10}$$

$$\Rightarrow M_{\text{KMnO}_4} = \frac{1}{100} = 0.01 \text{ M}$$

Q6) strength of  $\text{KMnO}_4$  solution

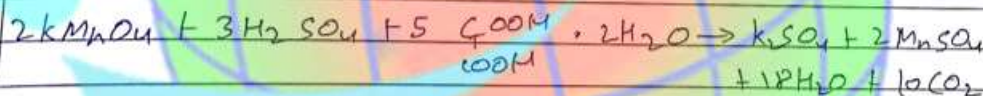
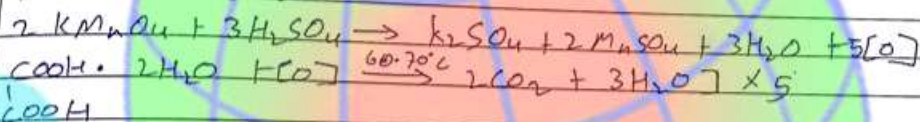
$$\begin{aligned} \text{Strength (in g/L)} &= \text{molarity} \times \text{molecular mass} \\ &= 0.01 \times 158 \\ &= 1.58 \text{ g/L} \end{aligned}$$

# Experiment No. 4

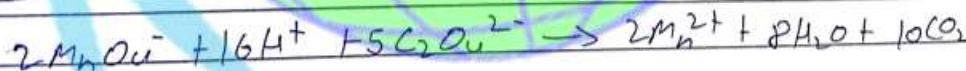
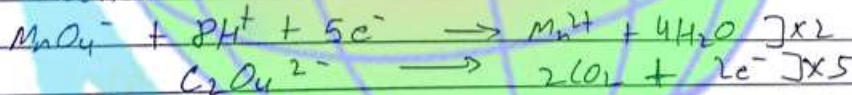
Aim:- To prepare m/50 solution of oxalic acid with its help, determine the molarity and strength of the given solution of potassium permanganate ( $KMnO_4$ )

Chemical Equation:-

Molecular equation



Ionic equation



Apparatus:- Burette, pipette, titration flask, 500ml measuring flask, test tube

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Chemicals Required :- oxalic acid crystals,  $\text{KMnO}_4$  solution (1.26 g/l), 9N  $\text{H}_2\text{SO}_4$

Indicator :-  $\text{KMnO}_4$  is self indicator

END Point :- colourless to permanent pink colour ( $\text{KMnO}_4$  in burette)

Procedure :- weighed exactly 1.26g of oxalic acid crystals and dissolved in water to prepare 500ml of its solution using in 500ml measuring flask - Rinsed the pipette with the oxalic acid solution and pipette out 20ml of it in a washed titration flask.

2. Rinsed and filled the burette with the given 1/50  $\text{KMnO}_4$  solution
3. Added one test tube (20ml) full of dil  $\text{H}_2\text{SO}_4$  (9N) to the solution in titration flask
4. Noted the final reading of the burette
5. Repeated the above step to get other concordant reading.

Observation :- weight of watched glass = 20g  
weight of (watch glass + oxalic acid) = 21g  
weight of oxalic acid = 1.26g

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Volume of oxalic acid solution prepared = 500 ml  
 solution taken in burette =  $\frac{1}{50}$   $\text{KMnO}_4$   
 volume of oxalic acid taken for each titration  
 = 20.0 ml

S. No	Initial Reading of Burette	Final Reading of Burette	Volume of $\text{KMnO}_4$ solution used
1	0 ml	13.2 ml	25 ml
2	10 ml	27 ml	25 ml
3	3 ml	18 ml	25 ml

Concordant volume = 25.0 ml

### Calculations :-

- a) Molarity of the  $\text{KMnO}_4$  solution  
 From the overall balanced chemical equation it is clear that 2 moles of  $\text{KMnO}_4$  reacts with 5 moles of oxalic acid

$$\frac{M_{\text{KMnO}_4} \times V_{\text{KMnO}_4}}{M_{\text{oxalic acid}} \times V_{\text{oxalic acid}}} = \frac{2}{5}$$

$$M_{\text{oxalic acid}} \times V_{\text{oxalic acid}}$$

$$\frac{M_{\text{KMnO}_4}}{\frac{1}{50} \times 20} = \frac{2}{5} \Rightarrow M_{\text{KMnO}_4} = \frac{2 \times 2}{5 \times 10} = \frac{2}{125} \text{ M}$$

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b) strength of the  $K_2CrO_4$  solution = Molarity  $\times$   
molecular mass

$$= \frac{2}{25 \times 10} \times 152 = 2.528 \text{ g/l}$$



## Experiment No. 5

Aim :- To identify the basic and acid radicals in the given salt

Physical characteristics :-

state = Amorphous

colour = white

solubility = in dilute HCl

A) Wet Test For Basic Radi

Experiment observation Inference :-

1) Wet Heating test

A pinch of salt in No gas evolved -  $\text{NH}_4^+$  absent  
 $\text{Zn}^{2+}$  tested in a dry No sublimate formed. May  
 be absent test tube No change in  
 colour

2) Charcoal cavity :-  
Test

A pinch of salt is No-colour change -  $\text{Ca}^{2+}$   $\text{Ba}^{2+}$   $\text{Sr}^{2+}$   
 Mixed with double white residue may be present  
 and heated quantity of  $\text{Na}_2\text{CO}_3$  which glows  
 $\text{Zn}^{2+}$  absent

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and heated on a charcoal cavity in reading flame

Experiment	Observation	Inference
3) Flame Test A paste of salt is prepared with conc. HCl and heated on flame	Bright red colour which doesn't persist	$Ca^{2+}$ Present

### B Dry Test For Acid Radical

Experiment	Observation	Inference
1) Dry Heating Test a) A pinch of salt is heated in a dry test tube with dil. $H_2SO_4$	colourless, colourless gas which turns lime water milky	$CO_3^{2-}$ or $SO_3^{2-}$ may be present.
b) The gas evolved in the previous test is passed through acidified $K_2Cr_2O_7$ solution	solution doesn't turn green	$SO_3^{2-}$ absent

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2) Again dry heating  
test is conducted  
but with conc.  $H_2SO_4$

No effect

$Cl^-$   $Br^-$   $I^-$   
absent  
 $CO_3^{2-}$  Present

Wet Test For Basic Radical

Experimental

Observation

Inference

1) The given salt  
is soluble in  
dil HCl

Group - I absent

2)  $H_2S$  gas is passed  
through the solution  
obtained from Exp-I

no ppt

Group - II absent

3) solution obtained from  
Exp-II was boiled to  
remove  $H_2S$  completely  
and finally a solution  
of  $NH_4Cl$  and  $NH_4OH$   
is added

no ppt

Group - III absent

4)  $H_2S$  gas is passed  
through the solution  
obtained from Exp-III

no ppt

Group - IV absent

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- 5) The solution obtained from Exp-IV is heated to remove  $H_2S$  gas completely and finally a solution of  $NH_4OH$  and  $(NH_4)_2CO_3$  is added while ppt. is obtained. Group V Present

### Analysis of Group V

Experiment:- The ppt was dissolved in hot dilute  $CH_3COOH$  solution and divided into three parts.

<u>Experiment</u>	<u>observation</u>	<u>Inference</u>
a) Few drops of $K_2CO_3$ solution are added	no yellow ppt formed	$Ba^{2+}$ absent
b) One ml of $(NH_4)_2SO_4$ solution is added and warmed	no white ppt formed	$Sr^{2+}$ absent
c) 2ml of Ammonium oxalate solution was added to the 3rd	a white ppt formed	$Ca^{2+}$ present

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position followed by  
a solution and then  
the wall of test-tube  
is scratched

d) Flame test is conducted  
with the ppt.

Brick red colour  
which doesn't  
persist

$Ca^{2+}$  present  
confirmed

### Wet Test for Acid Radical

#### Experiment

#### Observation

#### Inference

1) 5ml of salt  
solution acidified  
with dil  $HNO_3$   
is taken in a  
test tube and  
then we add  
 $AgNO_3$  solution

no ppt

$Cl^-$ ,  $Br^-$ ,  $I^-$   
absent

2) 5ml of salt solution  
acidified with dilute  
 $HCl$  is taken and  
then we add  $BaCl_2$   
solution

no ppt

$SO_4^{2-}$  absent.

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3) The salt solution is taken in a test-tube and then dilute HCl is added

colourless colourless gas turns lime water milky  $\text{CO}_3^{2-}$  may be present

doesn't turn acidified  $\text{K}_2\text{Cr}_2\text{O}_7$  solution green  $\text{SO}_3^{2-}$  absent

4) The salt solution is acidified with acetic acid and then lead acetate solution is added

no ppt  $\text{S}^{2-}$  absent

5) The salt solution is acidified with dilute HCl and then  $\text{MgSO}_4$  solution is added

white ppt obtained

$\text{CO}_3^{2-}$  present

Result :- The dry and wet tests conducted for the identification of the acid and basic radical confirm that the salt contains  $\text{Ca}^{2+}$  as the basic radical and  $\text{CO}_3^{2-}$  as the acid radical

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## Experiment No. 6

Aim:- To identify the basic and acid radicals present in the given salt

Physical characteristics:-

State - crystalline  
 Colour - white  
 Solubility - in cold water

1) Dry Test for Basic Radicals

Experiment	Observation	Inference
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1) Dry Heating test

A pinch of salt is heated in a dry test tube	No gas evolved No sublimate formed	$\text{NH}_4^+$ absent
--	---------------------------------------	------------------------

change of colour

$\text{Zn}^{2+}$  may be present.

2) Charcoal cavity Test

A pinch of salt is mixed with double.

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the quantity of  $\text{Na}_2\text{CO}_3$  acid heated on a charcoal cavity in reducing flame

In hot condition colour change to yellow. In cold condition colour change to white

$\text{Zn}^{2+}$  may be present.

### 3) Flame Test

A paste of salt prepared with conc. HCl and heated on flame

Green flashes

$\text{Zn}^{2+}$  present

### B) Dry Test For Acid Radicals

Experiment

observation

Inference

1) Dry Heating test  
A pinch of salt is heated in a dry test tube with dilute  $\text{H}_2\text{SO}_4$

No effect

$\text{CO}_3^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{S}^{2-}$   
None absent

2) Again dry heating test is conducted but with conc.  $\text{H}_2\text{SO}_4$

No effect

$\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$   
absent

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the quantity of  $\text{Na}_2\text{CO}_3$  acid heated on a charcoal cavity in reducing flame

In hot condition colour change to yellow. In cold condition colour change to white

$\text{Zn}^{2+}$  may be present.

### 3) Flame Test

A paste of salt prepared with conc. HCl and heated on flame

Green flashes

$\text{Zn}^{2+}$  present

### B) Dry Test For Acid Radicals

Experiment

observation

Interference

1) Dry Heating test  
A pinch of salt is heated in a dry test tube with dilute  $\text{H}_2\text{SO}_4$

No effect

$\text{CO}_3^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{S}^{2-}$   
None absent

2) Again dry heating test is conducted but with conc.  $\text{H}_2\text{SO}_4$

No effect

$\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$   
absent

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- 3) A small amount of salt is boiled with dilute HCl in a test tube and filter the contents and to the filtrate add few drops of  $\text{BaCl}_2$  solution
- white ppt insoluble in conc. HCl
- $\text{SO}_4^{2-}$  present

### Wet Test for Basic Radical

#### Experiment

#### observation

#### Inference

- 1) The given salt is soluble in dil HCl
- Group I absent.
- 2)  $\text{H}_2\text{S}$  gas is passed through the solution obtained from Exp 1.
- no ppt
- Group II absent
- 3) Solution obtained from Exp. 2 was boiled to remove  $\text{H}_2\text{S}$  completely and finally a solution of  $\text{NH}_4\text{Cl}$  and  $\text{NH}_4\text{OH}$  is added
- no ppt
- Group III absent.

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- 4)  $H_2S$  gas is passed through the solution obtained from Exp-3. A dull white ppt is obtained. Group II present ( $Zn^{2+}$ )

### Confirmation of $Zn^{2+}$

Experiment	Observation	Inference
1) Sodium Hydroxide Test To one part of original solution we add sodium hydroxide solution dropwise	white ppt. formed which dissolve on more addition of $NaOH$	
2) Pot. Ferrocyanide Test To another part we add pot ferrocyanide test	white or bluish white ppt. formed	$Zn^{2+}$ confirmed
3) Charcoal cavity Test Charcoal cavity test is conducted with the salt	white or greenish formed	

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Q) Wet Test For Acid Radical :-

<u>Experiment</u>	<u>Observation</u>	<u>Tolerance</u>
1) 5ml of salt solution acidified with dilute $\text{HNO}_3$ is taken in a test tube and then we add $\text{AgNO}_3$ solution	no ppt	$\text{Cl}^-$ , $\text{Br}^-$ , $\text{I}^-$ absent
2) The salt solution is taken in a test tube and then dil. $\text{HCl}$ is added	no gas evolved	$\text{CO}_3^{2-}$ , $\text{SO}_3^{2-}$ absent.
3) The salt solution is acidified with acetic acid and then lead acetate sol. is added	no ppt	$\text{S}^{2-}$ absent.

Result :- The dry and wet tests conducted for the identification of the acidic and basic radicals confirm that the salt contains  $\text{Zn}^{2+}$  and  $\text{SO}_4^{2-}$  as the basic and acid radicals respectively.

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# Experiment No. 7

Aim :- To identify the acid and basic radicals present in the given salt

Physical Characteristics :-

state - Crystalline  
 colour - white  
 solubility - water

A Day Test For Basic Radical

Experiment                      observation                      Tolerance

1) Day Heating Test

A pinch of salt is heated in a dry test tube

A gas evolved colourless with characteristic smell gives white fumes white sublimate formed

$\text{NH}_4^+$  may be present

2) A pinch of salt is mixed with double the quantity of  $\text{Na}_2\text{CO}_3$  and heated on a charcoal cavity in reducing flame

no action

$\text{Zn}^{2+}$ ,  $\text{Pb}^{2+}$   
 $\text{Cu}^{2+}$ ,  $\text{Bi}^{2+}$   
 absent.

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B) Dry Test For Acid Radical

Experiment

Observation

Inference

1) Dry Heating Test  
A pinch of salt is heated in a dry test tube with dilute HCl

no effect

$\text{CO}_3^{2-}$ ,  $\text{CO}_3^{2-}$ ,  $\text{C}^{2-}$  absent.

2) Again dry heating test is conducted, but with conc.  $\text{H}_2\text{SO}_4$

Colourless gas with pungent smell, white fumes with eq. Ammonia, white ppt. with  $\text{AgNO}_3$

$\text{Cl}^-$  present

C) Wet Test For Basic Radical

2) The solid salt is heated with conc solution of NaOH

characteristic ammonia smell gas gives white fumes when rod dipped in dil. HCl is brought near it

Group zero present.

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2) When passed through  
Nessler's gives brown  
ppt Group 2 also  
present ( $\text{NH}_4^+$ )  
Confirmed.

### D) Wet Test For Acid Radical

1) 5 ml of salt solution  
acidified with dil  $\text{HNO}_3$   
is taken in a test tube  
and then we add  $\text{AgNO}_3$   
solution white ppt  
soluble in  
 $\text{NH}_4\text{OH}$   $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$   
present.

2) We heat a pinch of  
salt with small quantity  
of  $\text{MnO}_2$  and conc.  
 $\text{H}_2\text{SO}_4$  Greenish yellow  
gas pungent  
irritating smell  
turns starch  
cochine paper blue  $\text{Cl}^-$  may  
be present

Result :- Therefore the tests shows that the salt  
contains  $\text{NH}_4^+$  and  $\text{Cl}^-$  as basis and  
acid radicals respectively.

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# Experiment No.-8

Aim :- To identify the functional group of a given organic compound.

Experiment	Observation	Inference
1) Test For Unsaturation		
dissolved 0.2 ml of organic compound in 2 ml $CCl_4$ . Then added bromine water dropwise	Brown colour of bromine not discharged	No unsaturation is present
2) Test For Carboxylic Group:		
Added a pinch of $NaHCO_3$ to 0.2 ml of organic compound in a test tube	No effervescence	Carboxylic group is absent
3) Test For Phenolic Group.		
Added 0.2 ml of organic compound to 2-3 ml neutral $FeCl_3$ solution in a test tube	No green or violet colour obtained	Phenolic group absent

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## 4) Test For Alcohols Group

1) In a dry test tube  
1ml of the given  
liquid is taken

add about 1g of  
anhydrous calcium

sulphate and shake  
well to remove

water. Filter the

liquid and

decant it. The liquid  
to another clean dry

test tube and add a

small piece of

Na metal

A brisk  
effervescence is  
evolved

Alcohol is  
present.

## 5) Test For Carbonyl group

Shake 0.2 ml of organic

compound with 2-3 ml

of 2,3-dinitrophenyl

hydrazine

Formed

No. ppt is

formed

Carbonyl

group is

absent.

Result :- The given organic compound  
contains alcoholic functional  
group

# Experiment No. 9

Aim: To identify the functional group present in the given organic compound.

<u>Experiment</u>	<u>Observation</u>	<u>Inference</u>
1) Test for Unsaturation		
Dissolved 0.2 ml of organic compound in 2 ml $CCl_4$ . Then added $Bc$ -water dropwise	Brown colour of bromine water discharged	No unsaturation is present
2) Test for Carboxylic Group		
Added a pinch of $NaHCO_3$ to 0.2 ml of organic compound in a test tube	No effervescence	Carboxylic group is present
3) Test for Phenolic Group		
Added 0.2 ml of organic compound to 2.3 ml neutral $FeCl_3$ solution in test tube	No green or violet colour obtained	Phenolic group absent

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#### 4. Test For Alcohol's group

In a dry test tube 1ml of the given liquid is taken add about 1g of anhydrous calcium sulphate and shake well to remove water. Tilt or decant off the liquid to another clean dry test tube and add a small piece of Na metal.

A brisk effervescence is evolved

Alcohol is present.

#### 5. Test For Carbonyl Group

Shake 0.2ml of organic compound with 2-3ml of 2,3-dinitrophenyl hydrazine

No ppt is formed

Carbonyl group is absent

Result:- The given organic compound contains aldehydic functional groups.

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# Experiment No. 10

Aim :- To identify the functional groups present in the given organic compound

Experiment	Observation	Inference
1) Test For Unsaturation		
Dissolved 0.2 ml of organic compound in 2 ml ccl <sub>4</sub> . then added bromine water dropwise	Brown colour of bromine not discharged	No unsaturation is present.
2) Test For Carboxylic Group		
Carboxylic acid reacts with sodium carbonate to give carbon dioxide gas which is to identify	A brisk effervescence is produced	Presence of carboxylic group
3) Test For Phenolic Group		
Added 0.2 ml of organic compound to 2-3 ml	No green or violet colour	Phenolic group absent.

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neutral FeCl<sub>3</sub> solution  
in a test tube obtained

#### 4. Test For Alcoholic Groups

Add a small piece  
of Na to 1 ml of the  
given liquid in a dry  
test tube

No effervescence

Alcoholic  
group is  
absent.

#### 5. Test For Carbonyl group

Shake 0.2 ml of organic  
compound with 2-3 ml  
of 2,3-dinitrophenyl  
hydrazine in a  
test tube

No ppt is  
formed

Carbonyl  
group is  
absent.

Result:- The given organic compound contains  
carboxylic functional group.

Teacher's Signature \_\_\_\_\_



