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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -I

Salt NO: Date:

	ate:	<u>.</u>	r
s.no	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)AppearanceAppearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water	Soluble	May be sulphate nitrate chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	A reddish brown gas with a fishy odour evolves.	Presence of a nitrate salt
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No Characteristic coloured flame.	Absence of copper, calcium and barium.
5.	Action of dil. Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	A reddish brown gas with the fishy odour turning a moist ferrous sulphate paper brown evolves.	Presence of nitrate
6.	Action of Conc. Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5mL of Conc. Sulphuric acid and gently heat it in the Bunsen flame.	Reddish brown gas turning acidified ferrous sulphate paper green evolves	Presence of nitrate
7	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4 . Gently heat it.	A reddish brown gas with fishy odour turning a moist ferrous sulphate paper brown evolves	Presence of nitrate
9.	Action of dilute Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salts
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid and gently heat it.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
11.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1mL of Silver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
12.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves- cence ceases, then add 1ml of barium chloride solution and shake it.	No White precipitate is obtained	Absence of sulphate

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13	Test with lead acetate: To about 1ml of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate.	No white precipitate is obtained	Absence of sulphate
14.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dil. H_2SO_4 in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	A brown ring is formed	Nitrate is confirmed
15.	Ammonium molybdate test: To one portion of the extract, add dilute Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
16.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammmonia then add about few drops of sodium nitro bruside	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

	ZERO GROUP				
	few drops of the original solution sodium hydroxide and ler's reagent and excess of sodium hydroxide solution are	No reddish brown precipitate	Absence of ammonium.		
adde	$\mathbf{d}.TTTTTTTTTT$	$\bigcirc \bigcirc $			
	GROUP S	EPERATION			
1.	To a few drops of the origin al solution 2 ml of dilute	White precipitate soluble when	Presence of first group.(
	hydrochloric acid is added.	boileed with water is obtained.	Lead)		
	CONFIRMATORY TE	ST FOR BASIC RADICAL	-		
Test	for Lead:	Yellow precipitate soluble in hot	Lead is confirmed.		
To a	few drops of original solution add about 1ml of potassium	water which reappears as golden			
Iodic	le is added.	yellow spangles on cooling is			
		obtained.			
	CONFIRMATORY TE	ST FOR ACID RADICAL			
Brow	wn Ring test:				
To about 1mL of the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate		A brown ring is formed.	Nitrate is confirmed .		
	ion. Then keeping the test tube in a slanting position add e. Sulphuric acid along the sides of the test tube.				

RESULT

The given simple salt contains

1. Acid Radical : Nitrate

2.Basic Radical : Lead

The given simple salt is Lead Nitrate.

 $\label{eq:matrix} \textit{Material prepared by } S.venkatesan \textit{M.sc Mphil., B.A., B.Ed} \textit{ (Vellore District)}$

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -II

Salt NO:

	Date:		
S.No	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)AppearanceAppearance of the salt is noted	Blue Crystalline	May be copper sulphate May be sulphate, nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change .	Absence of carbonate nitrate ammonium and zinc .
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	Bluish green flame	Presence of copper salt.
4.	Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dil. Hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic change .	Absence of sulphide and carbonate.
5.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
6	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. Sulphuric acid. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
8.	Action of dilute Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid and gently heat it.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1m of Silver nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	A white precipitate is formed insoluble in dilute sulphuric acid.	Sulphate is confirmed

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	A white precipitate soluble in excess of ammonium acetate is formed.	Presence of Sulphate .
13.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about $0.5mL$ of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dilute Nirtric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

	ZERO GROUP				
1.	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.		
		SEPERATION			
		<u> </u>			
.1	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group		
2.	To a few drops of the original solution 2 ml of dilute	Black precipitate is obtained.	Presence of second group		
	hydrochloric acid is added and Hydrogen gas is passed.		(Copper)		
	CONFIRMATORY TE	ST FOR BASIC RADICAL			
To t	t for Copper he blue coloured solution add about 1 ml each acetic acid potassium ferrocyanide.	A red brown precipitate is obtained.	Copper is confirmed.		
	CONFIRMATORY T	EST FOR ACID RADICAL			
Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.		A white precipitate soluble in excess of ammonium acetate is formed.	Sulphate is confirmed.		

RESULT

The given simple salt contains

 1. Acid Radical : Sulphate
 2.Basic Radical : Copper.

The given simple salt is <u>Copper sulphate</u>

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -III

Salt NO: Date:

L	Date:		
S.O	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)Appearance	Green	May be copper
	Appearance of the salt is noted	Powdery	May be Carbonate or sulphide
2.	Solubility: A little of the salt is shaken with water.	Insoluble	May be Carbonate or sulphide
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	Colourless,odourless gas turning lime water milky.	May be carbonate .
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	Bluish green flame	Presence of copper salt.
5.	Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dil. HCl to it. Gently heat it in the Bunsen flame.	Brisk effervescence of colourless gas turning lime water milky	Carbonate is confirmed .
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc.Sulphuric acid and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
7	Action of MnO_2 and Conc. H_2SO_4 : Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	Action of dil. Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid and gently heat it.	No Red Orange vapours	Absence of chloride

ANALYSIS WITH SODIUM CARBONATE EXTRACT

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about 1ml of Silver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves- cence ceases, then add 1mL of barium chloride solution and shake it.	No white precipitate is formed.	Absence of Sulphate

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed.	Absence of sulphate .
13.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dilute Sulphuric acid in drops with shaking until the effervescence ceases and about $0.5mL$ of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H ₂ SO ₄ along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dilute Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary Yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in Hydrochloric acid .

ZERO GROUP				
1.	To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.	
		P SEPERATION		
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group	
3.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	Black precipitate is obtained.	Presence of second group (Copper)	
	CONFIRMATORY	TEST FOR BASIC RADICAL		
To t	for Copper the blue coloured solution add about 1 ml each acetic and potassium ferrocyanide.	A red brown precipitate is obtained .	Copper is confirmed .	
		TEST FOR ACID RADICAL		
Take	ton of dilute hydrochloride : e a small amount of salt in a test tube and add dilute rochloric acid is added.	Brisk effervescence of colourless gas turning lime water milky	Carbonate is confirmed.	
RES	SULT			

The given simple salt contains

1. Acid Radical : Carbonate 2.Basic Radical : Copper

The given simple salt is <u>Copper Carbonate.</u>

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -IV

Salt NO:

Date:

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted. b)Appearance	Brown	May be an iron salt
	Appearance of the salt is noted	Crystalline	May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change	Absence of ammonium, nitrate, Zinc salts
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No characteristic change	Absence of Copper, Calcium and Barium
5.	Action of dil. Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloride to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonat and sulphide and nitrate.
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	A colourless gas evolves. It gives a dense white fumes when a glass rod dipped in liquid ammonia is brought close to its mouth.	Presence of chloride
7	Action of MnO ₂ and Conc. H_2SO_4 : Take a small amount of salt in a test tube, add pinch of MnO ₂ and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride
8.	Action of Conc. H ₂ SO ₄ and copper turning:		
	Take a small quantity of salt in a dry test tube and add few copper turnings and about $1mL$ of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	Action of dil. Sodium Hydroxide solution:		
	To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	No pungent smelling gas.	Absence of ammonium salt.
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.

ANALYSIS WITH SODIUM CARBONATE EXTRACT

Preparation of sodium carbonate extract:

A small amount of salt is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered . the filtrate is called sodium carbonate extrate..

11.	Test for halides:		
	To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	in about Iml of dil. ammonia is	Presence of chloride

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11.	Test with Barium chloride: To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves- cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate
12	Test with lead acetate:		
	To about $1mL$ of the sodium carbonate extract, add $1mL$ of dil acetic acid and heat it , until the effervescence ceases, and then add $1ml$ of lead acetate	No white precipitate is obtained.	Absence of Sulphate
13.	Brown ring test:		
	To about 1ml of the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test:		
	To one portion of the extract , add dil Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside:		
	To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtained.	Absence of Sulphide.

Preparation of the original solution :

		e original solution :	
The or	iginal solution is prepared by dissolving a small of the salt in	n 10 to 15 ml of Water. \bigcirc	
6		OGROUP	
1.	To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.		Absence of ammonium.
	GROUP	SEPERATION	
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group
3.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group
4.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added.	Brown coloured precipitate is obtained	Presence of Iron
	CONFIRMATORY TES	T FOR BASIC RADICAL	
To t	t for Iron: he solution add about 1 ml of dilute hydrochloride and it and then add about 1 ml of potassium ferocyanide.	A Blue precipitate is obtained.	Iron is confirmed.
	CONFIRMATORY TES	ST FOR ACID RADICAL	
Take pota	omyl Chloride test: e a small quantity of salt in a test tube, add a pinch of ssium dichromate and few drops Conc. Sulphuric acid tly heat it.	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.
RESU			

The given simple salt contains

1. Acid Radical : Chloride 2.Basic Radical : Iron (Ferric)

The given simple salt is <u>Ferric chloride</u>

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT $-\!\mathrm{V}$

Salt NO:

Dat		r	r
S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)Appearance	Colourless	Absence of copper and iron salts.
	Appearance of the salt is noted	Crystalline	May be Sulphate, nitrate or Chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3	Action of heat: A small amount of a salt is strongly heated in a test tube	The salt turns yellow when hot and white when cold	May be Zinc salt .
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No Characteristic coloured flame.	Absence of copper,calcium and barium.
5.	Action of dilute hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic change	Absence of carbonate, sulphide and nitrate
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc.Sulphuric acid and gently heat it in the Bunsen flame.	No characteristic gas is evolves	Absence of chloride bromide nitrate.
7	Action of MnO_2 and Conc. H_2SO_4 : Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas is evolved	Absence of chloride , bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	Action of dilute Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dil. NaOH solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt.
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid gently heat it	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about 1mL of AgNO ₃ , and shake it well.	No precipitate is obtained	Absence of chloride, bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	Sulphate is confirmed

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate.	A white precipitate soluble in excess of ammonium acegate is formed.	Presence of Sulphate .
13.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc.Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dil.HNO ₃ until the ef- fervescence ceases, then add about 1mL each of ammonium molybdate and Conc. HNO ₃	No yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide
	IDENTIFICATION OF	THE BASIC RADICALS	

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

ZEF	CO GROUP			
	To a few drops of the original solution a fe Nessler's reagent and excess of sodium solution are added.			Absence of ammonium.
		GROU	IP SEPERATION	
1.	To a few drops of the original solution 2 ml hydrochloric acid is added.	l of dilute	No characteristic precipitate	Absence of first group
2.	To a few drops of the original solution 2 ml hydrochloric acid is added and Hydrogen su is passed.		No Black precipitate is obtained.	Absence of second group
3	To a few drops of the original solution ammonium chloride and 2ml of ammonium solutions are added		No precipitate is obtained	Absence of Third group
4	To a few drops of the original solution ammonium chloride and 2ml of ammonium solutions are added and and Hydrogen sulphi passed.	hydroxide	Dirty white precipate is obtained.	Presence of Fourth group (Zinc)
	CONFIRM	IATORY TI	EST FOR BASIC RADICAL	
Тоа	for Zinc a few drops of the Originial solution 2ml of ssium ferro cyanide solution is added.	White prec hydroxide.	cipitate soluble in excess of sodium	Zinc is confirmed.
	CONFIRM	MATORY T	EST FOR ACID RADICAL	Γ
Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.		A white dil sulphur	precipitate is formed insoluble in ic acid	Sulphate is confirmed
	SULT	1		

The given simple salt contains

1. Acid Radical : Sulphate 2.Basic Radical : Zinc

.. The given simple salt is Zinc Sulphate

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT- VI

Salt NO: Date:

ate:			NERRENCE
S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted.	Colourless	Absence of copper and iron salts
	b)Appearance Appearance of the salt is noted	Powdery	May be carbonte or sulphide salts.
2.	Solubility: A little of the salt is shaken with water.	Insoluble	May be sulphide, Carbonate
2.	Action of heat: A small amount of a salt is strongly heated in a test tube	Salt is yellow when hot and white when cold	May be a zinc salt
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No characteristic flame	Absence of Copper, Calcium and Barium
4.	Action of dilute hydrochloridic acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloride to it. Gently heat it in the Bunsen flame	A colourless gas with a rotten egg smell turning a paper dipped in lead acetate shining black evolves	Sulphide is confirmed
5.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame.	No characteristic natured gas evolves	Absence of chloride, bromide, nitrate
6	Action of MnO_2 and Conc. H_2SO_4 Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic natured gas evolves	Absence of chloride, bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas	Absence of Nitrate
8.	Action of dilute Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	No pungent smelling gas.	Absence of ammonium salt.
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid Gently heat it.	No red orange Vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

10.	Test for halides:		
	To about one mL of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver Nitrate, and shake it well.	A black ppt is formed	Sulphide is confirmed

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11.	Test with barium chloride: To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate
12	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	A black precipitate soluble in hot dilute nitirc acid is obtained.	Presence of sulphide
13.	Brown ring test: To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil Nitroc acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	A purple colouration appears	Presence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of dilute hydrochloric acid.

		ZERO GROUP	
	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	,	GROUP SEPERATION	
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No characteristic precipitate obtained .	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen sulphide gas is passed.	No Black precipitate is obtained.	Absence of second group
3	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No precipitate is obtained	Absence of Third group
4	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and and Hydrogen	Dirty white precipate is obtained.	Presence of Fourth group (Zinc)
	sulphide gas is passed. CONFIRMATOR	Y TEST FOR BASIC RADICAL	
Test	for Zinc	White precipitate soluble in excess of	Zinc is confirmed.

Test for Zinc white precipitate soluble in excess of sodium hydroxide. Zinc is continued. To a few drops of the Originial solution potassium ferro cyanide is added. Sodium hydroxide. Zinc is continued. CONFIRMATORY TEST FOR ACID RADICAL Example to the content of the

Action of dilute hyrochloric acid:	A Colourless rotten egg smelling gas	Sulphide is confirmed
A small amount of the salt is added to dilute hydrochloric	turning lead acetate paper black on	
acid taken in a test tube.	warming evolves	

RESULT

The given simple salt contains

1. Acid Radical : Sulphide

.. The given simple salt is Zinc sulphide

2.Basic Radical : Zinc

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT –VII

Salt NO: Date:

Dat			
S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)AppearanceAppearance of the salt is noted	Colourless Crystalline	Absence of copper, iron salts May be sulphate, nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change .	Absence of carbonate nitrate ammonium and zinc .
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic flame	Absence of copper, barium, calcium salts.
5.	Action of dil. HCl: Take a small amount of salt in a test tube and add about 1ml of dil. HCl to it. Gently heat it in the Bunsen flame.	No characteristic change .	Absence of sulphide and carbonate .
6.	Action of Conc. Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
7	<u>Action of MnO_2 and Conc. H_2SO_4:</u> Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	Action of dilute sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid gently heat it	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dil. HNO ₃ in drops with shaking until the effervescence ceases, and then add about 1mL of AgNO ₃ , and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dilute sulphuric acid.	Sulphate is confirmed

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	A white precipitate soluble in excess of ammonium acetate is formed.	Presence of sulphate .
13.	Brown Ring test: To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc.Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dil. Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide
	dil .ammonia then add about few drops of sodium nitro bruside.		

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

	ZER	O GROUP	
1.	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP	SEPARATION	
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	Black precipitate is obtained.	Absence of second group
3.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	Gelatinous white precipitate soluble in sodium hydroxide is obtained	Presence of Aluminium (III group)
	CONFIRMATORY T	EST FOR BASIC RADICAL	
То	for Aluminium a few drops of the original solution 2ml of ammonium roxide and few drops of " Aluminon " reagent are added.	A bright red lake is obtained	Aluminium is confirmed.
	CONFIRMATORY T	EST FOR ACID RADICAL	
To acet	t with Barium chloride: about one ml of the sodium carbonate extract, add dil. ic acid in drops with shaking until the effervescence es, then add 1ml of barium chloride solution and shake it.	A white precipitate soluble in excess of ammonium acetate is formed.	1

<u>RESULT:</u>

The given simple salt contains 1. Acid Radical : Sulphate 2.Basic Radical : Aluminium

.. The given salt is Aluminium Sulphate.

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -VIII

S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)AppearanceAppearance of the salt is noted	Colourless Crystalline	Absence of copper and iron salts May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water	Soluble	May be sulphate nitrate chloride
2.	Action of heat: A small amount of a salt is strongly heated in a test tube	A reddish brown gas with a fishy odour evolves.	Presence of a nitrate salt
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No Characteristic coloured flame.	Absence of copper, calcium and barium.
4.	Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dil. HCl to it. Gently heat it in the Bunsen flame.	A reddish brown gas with the fishy odour turning a moist ferrous sulphate paper brown evolves.	Presence of nitrate
5.	Action of Conc. Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	Reddish brown gas turning acidified ferrous sulphate paper green evolves	Presence of nitrate
6	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	A reddish brown gas with fishy odour turning a moist ferrous sulphate paper brown evolves	Presence of nitrate
8.	Action of dilute Sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute Sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.	No White precipitate is obtained	Absence of sulphate

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is obtained	Absence of sulphate
13.	Brown Ring test: To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	A brown ring is formed	Nitrate is confirmed
14.	Ammonium molybdate test: To one portion of the extract, add dilute nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium Nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil ammonia then add about few drops of sodium nitro bruside	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water .

ZERO GROUP			
To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.	
GROUP SEPARATION			
1. To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate.	Absence of It group.	
2. To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and hydrogen sulphide gas is passed.	No black precipitate is obtained.	Absence of II group	
3. To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added.	Gelatinous whie precipitate is obtained	Presence of III group	
CONFIRMATORY TEST FOR BASIC RADICAL			
Test for Aluminium: Toa few drops of original solution 2ml of ammonium hydroxide and few drops of Aluminon reagent are added.	A bright red lake is obtained	Aluminium is confirmed.	
CONFIRMATORY TE	ST FOR ACID RADICAL		
Brown Ring test:			
To about 1mL o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	A brown ring is formed.	Nitrate is confirmed .	

<u>RESULT</u>

The given simple salt contains 1. Acid Radical : Nitrate

2.Basic Radical : Aluminium

The given simple salt is : <u>Aluminium Nitrate</u>

SYSTEMATIC ANALYSIS OF A SIMPLE SALT -IX

Salt NO: Date:

	te:		
S.no	Experiment	Observation	Inference
1.	a) Colour Colour of the salt is noted.	Colourless	Absence of copper and iron salts
	b) Appearance Appearance of the salt is noted	Powdery	May be Carbonate or sulphide
2.	Solubility: A little of the salt is shaken with water.	Insoluble	May be Carbonate or sulphide
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	Colourless,odourless gas turning lime water milky.	May be carbonate .
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	Brick red	Presence of calcium salt.
5.	Action of dilute Hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	Brisk effervescence of colourless gas turning lime water milky	Carbonate is confirmed.
6.	Action of Conc Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
7	Action of MnO_2 and Conc. H_2SO_4 : Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas evolves	Absence of nitrate
9.	Action of dil. Sodium hydroxide solution:		
	To a small quantity of a salt add about 1ml of dil. Sodium hydroxide and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid. Gently heat it.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dil. HNO_3 in drops with shaking until the effervescence ceases, and then add about $1mL$ of AgNO ₃ , and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride:	No white precipitate is formed.	Absence of Sulphate
	To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1mL of barium chloride solution and shake it.		

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed.	Absence of sulphate .
13.	Brown Ring test:		
	To about 1ml o f the sodium carbonate extract add dil. H_2SO_4 in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. H_2SO_4 along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract , add dil.Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc. Nitric acid	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside:		
	To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in hydrochloric acid .

	ZI	ERO GROUP	
1.	To a few drops of the original solution sodium hydroxide and Nessler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	GROU	JP SEPERATION	
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
3.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No characteristic precipitate is obtained.	Absence of II group
4.	To a few drops of original solution 1ml of each ammonium chloride and of ammonium hydroxide solutions are added.	No characteristic precipitate is obtainted.	Absence of III group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and Hydrogen sulphide gas is passed.	No characteristic precipate is obtained.	Absence of Fourth group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	White precipitate is obtained.	Presence of fifth group (Calcium or Barium)
	CONFIRMATORY	TEST FOR BASIC RADICAL	
Test for Calcium To a few drops original solution 1ml of ammonium hydroxide and 2ml of ammonium oxalate solutions are added.		White precipitate is insoluble in acetic acid is obtained.	Calcium is confirmed .
	CONFIRMATORY	TEST FOR ACID RADICAL	
Tak	ion of dilute Hydrochloric acid: e a small amount of salt in a test tube and add about 1ml ilute hydrochloric acid to it.	Brisk effervescence of colourless gas turning lime water milky	Carbonate is confirmed.
RES	SULT		

The given simple salt contains

1. Acid Radical : Carbonate 1.Basic Radical : Calcium

.. The given simple salt is Calcium Carbonate

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -X

Salt NO:

ate:	EVDEDIMENT	ODSEDVATION	INFEDENCE
S.NO	EXPERIMENT	OBSERVATION	INFERENCE May be an iron solt
1.	a) ColourColour of the salt is noted.b)Appearance	Brown	May be an iron salt
	Appearance of the salt is noted	Crystalline	May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	soluble	May be Sulphate nitrate or chloride.
3.	Action of heat:	No characteristic change	Absence of ammonium, nitrate,
	A small amount of a salt is strongly heated in a test tube		Zinc salts
4.	Flame test:		
	Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	Add a form a of the	Presence or Barium salt
5.	Action of dil. Hydrochloridic acid:		Absence of carbonate and sulphide and nitrate.
	Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloride to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	
6.	Action of Conc.Sulphuric acid:	A colourless gas evolves. It gives	
	Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	a dense white fumes when a glass rod dipped in liquid ammonia is brought close to its mouth.	Presence of chloride
7	Action of MnO ₂ and Conc. H ₂ SO ₄ :		
	Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride
8.	Action of Conc. H ₂ SO ₄ and copper turning:		
	Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	Action of dil. Sodium Hydroxide solution:		
	To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	No pungent smelling gas.	Absence of ammonium salt.
10.	Chromyl chloride test:	Red Orange vapours evolved are	
	Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

1	0.	Test for halides:		
		To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	insoluble in about 1ml of dil.	Presence of chloride

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11.	Test with Barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves- cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate
12	Test with lead acetate: To about 1ml of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate
13.	Brown ring test: To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dil Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtained.	Absence of Sulphide.
	Preparation of the	original solution :	
The orig	ginal solution is prepared by dissolving a small of the salt in		
	ZERO	GROUP	
	To a few drops of the original solution few drops of Nessler's reagent and excess of sodium hydroxide solution are added $\sqrt{2}$		Absence of ammonium.
		EPERATION	
	To a few drops of the original solution 2 ml of dilute- hydrochloric acid is added.		Absence of first group
	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group
	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No Characteristic precipitate is obtained	Absence of Third group
	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and then hydrogen sulphide gas is passed.	No dirty white precipitate is obtained	Absence of Fourth group
	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	White precipitate is obtained.	Presence of V group (Calcium or Barium)
	CONFIRMATORY TEST	FOR BASIC RADICAL	
To a	for Barium: a few drops of the original solution 2 ml of potassium nate solution is added.	Yellow precipitate is obtained.	Barium is confirmed.
	CONFIRMATORY TES		
Take potase	myl Chloride test: a small quantity of salt in a test tube, add a pinch of sium dichromate and few drops Conc. Sulphuric acid y heat it.	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.

The given simple salt contains

1. Acid Radical : Chloride 2.Basic Radical : Barium

The given simple salt is <u>Barium chloride</u>

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -XI

Salt NO: Date:

Date S.NO		ODSEDVATION	INFEDENCE
	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) Colour Colour of the salt is noted.	Colourless	Absence of copper ,iron salts
	b)Appearance Appearance of the salt is noted	Crystalline	May be Sulphate nitrate or chloride
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be Sulphate nitrate or chloride.
3.	Action of heat: A small amount of a salt is strongly heated in a test tube	A colourless gas with the pungent smell turning red litmus paper into blue evolves.	Presence of an ammonium salts
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame	No characteristic coloured flame	Absence of Copper, Calcium, Barium salt
5.	Action of dil. Hydrochloric acid: Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloride to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonat and sulphide and nitrate.
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	A colourless gas evolves. It gives a dense white fumes when a glass rod dipped in liquid ammonia is brought close to its mouth.	Presence of chloride
7	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A greenish yellow gas turning starch iodide paper blue evolves	Presence of chloride
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	Action of dil. Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	A colourless gas with the pungent smell giving dense white fumes with a glass rod dipped in dil hydrochloride evolves.	Presence of ammonium salt.
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it. Analysis with sodium	Red Orange vapours evolved are passed through water to get a yellow solution which on ading lead acetate forms a yellow precipitate.	Chloride is confirmed.

Analysis with sodium carbonate extract Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

11.	Test for halides:		
	To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of Silver nitrate, and shake it well.	A 1 1	Presence of chloride
12.	Test with Barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is obtained.	Absence of sulphate

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13	Test with lead acetate:		
	To about 1ml of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate
14.	Brown ring test:		
	To about 1mL o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.
15.	Ammonium molybdate test: To one portion of the extract, add dil Nitric acid until the ef- fervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.
16.	Test with sodium nitro bruside:		
	To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtained.	Absence of Sulphide.

Preparation of the original solution :

The original solution is prepared by dissolving a small of the salt in 10 to 15 ml of Water.

	ZERO GROUP			
1.	To a few drops of the original solution few drops Nessler's reagent and excess of sodium hydroxide solut are added.		Reddish brown precipitate	presence of ammonium.
	GROU	P SEP	ERATION	
1.	To a few drops of the original solution 2 ml of on hydrochloric acid is added.	dilute	No White precipitate is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of on hydrochloric acid is added and Hydrogen gas is passed.	lilute	No Black precipitate is obtained.	Absence of second group
3.	To a few drops of original solution 1ml of ammo chloride and 2ml of ammonium hydroxide solutions are a		No Characteristic precipitate is obtained	Absence of Third group
4.	To a few drops of original solution 1ml of ammo chloride and 2ml of ammonium hydroxide solutions are a and then hydrogen sulphide gas is passed.		No dirty white precipitate is obtained	Absence of Fourth group
5.	To a few drops of original solution 1ml of ammo chloride and 2ml of ammonium hydroxide and 2 m ammonium carbonate solutions are added.		No White precipitate is obtained.	Absence of V group
6.	To a few drops of original solution 1ml of ammo chloride and 2ml of ammonium hydroxide and 2 ml o sodium hydrogen solutions are added.		No white precipitate is obtained	Absence of VI group
		TEST 1	FOR BASIC RADICAL	
To No	est for Ammonium o a few drops of the original solution few drops os essler's reagent and excess of sodium hydroxide solution e added.		lish brown precipitate	Ammonium is confirmed.
	CONFIRMATORY	TEST	FOR ACID RADICAL	
Ta po	hromyl Chloride test: ake a small quantity of salt in a test tube, add a pinch of stassium dichromate and few drops Conc. Sulphuric acid ently heat it.	passe solut	Orange vapours evolved are ed through water to get a yellow ion which on ading lead acetate s a yellow precipitate.	Chloride is confirmed.

RESULT

The given simple salt contains 1. Acid Radical : Chloride

2.Basic Radical : Ammonium

The given simple salt is Ammonium chloride

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT -XII

Salt NO: Date:

Date:			
S.NO	EXPERIMENT	OBSERVATION	INFERENCE
1.	a) ColourColour of the salt is noted.b)Appearance	Colourless	Absence of copper ,iron salts May be Sulphate nitrate or chloride
	Appearance of the salt is noted	Crystalline	chionde
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be Sulphate nitrate or chloride.
3.	Action of heat:	A colourless gas with the	Presence of an ammonium
	A small amount of a salt is strongly heated in a test tube	pungent smell turning red litmus paper into blue evolves.	salts
4.	Flame test:		
	Take a small amount of salt in a watch glass. Add a drop of Conc. Hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic coloured flame	Absence of Copper, Calcium, Barium salt
5.	Action of dil. Hydrochloric acid:		
	Take a small amount of salt in a test tube and add about 1mL of dil. Hydrochloric acid to it. Gently heat it in the Bunsen flame	No characeristic natured gas evolves.	Absence of carbonate and sulphide and nitrate.
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. Sulphuric acid and gently heat it in the Bunsen flame	A reddish brown gas turning moist fluorescein paper green evolves.	Presence of Bromide.
7	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	A reddish brown gas turning moist fluorescein paper red evolves	Presence of Bromide
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. H_2SO_4 .Gently heat it.	No reddish brown gas	Absence of Nitrate.
9.	Action of dil. Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dil. Sodium hydroxide solution and gently heat it	A colourless gas with the pungent smell giving dense white fumes with a glass rod dipped in dil hydrochloride evolves.	Presence of ammonium salt.
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and few drops Conc. Sulphuric acid Gently heat it.	No Red Orange vapours	Absence of Chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

10.	Test for halides:		
	To about one ml of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml of		Bromide is confirmed
	Silver nitrate, and shake it well.		
11.	Test with Barium chloride: To about one ml of the sodium carbonate extract, add	No white precipitate is obtained.	
	dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	i i o white procipitate is obtained.	Absence of sulphate

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12	Test with lead acetate:					
	To about 1ml of the sodium carbonate extract, add 1mL of dil acetic acid and heat it, until the effervescence ceases, and then add 1ml of lead acetate	No white precipitate is obtained.	Absence of Sulphate			
13.	Brown ring test: To about 1ml of the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5ml of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed.	Absence of Nitrate.			
14.	Ammonium molybdate test: To one portion of the extract, add dil Nitric acid until the effervescence ceases, then add about 1mL each of ammonium molybdate and Conc.Nitric acid	No canary yellow precipitate is formed.	Absence of Phosphate.			
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .ammonia. Then add about few drops of sodium nitro bruside	No purple or violet colur obtained.	Absence of Sulphide.			
	rration of the original solution :	alt in 10 to 15 ml of Water				
I ne o	riginal solution is prepared by dissolving a small of the s	ERO GROUP				
1.	To a few drops of the original solution few drops os Nessler's reagent and excess of sodium hydroxide solution are added.	Reddish brown precipitate	presence of ammonium.			
	GROU	JP SEPERATION				
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No White precipitate is obtained.	Absence of first group			
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No Black precipitate is obtained.	Absence of second group			
3.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No Characteristic precipitate is obtained	Absence of Third group			
4.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and then hydrogen sulphide gas is passed.	No dirty white precipitate is obtained	Absence of Fourth group			
5.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of V group			
6.	To a few drops of original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of di sodium hydrogen solutions are added.	No white precipitate is obtained	Absence of VI group			
	CONFIRMATORY T	EST FOR BASIC RADICAL				
To a Ness	for Ammonium a few drops of the original solution few drops of ler's reagent and excess of sodium hydroxide solution dded.	Reddish brown precipitate	Ammonium is confirmed.			
are u	CONFIRMATORY TEST FOR ACID RADICAL					
Test	for halides:					
To a Nitri	bout one ml of the sodium carbonate extract add dil. c acid in drops with shaking until the effervescence es, and then add about 1ml of Silver nitrate, and shake ll.	A Pale yellow precipitate sparingly soluble in ammonium is formed.	Bromide is confirmed.			

- The given simple salt contains 1. Acid Radical : Bromide

2.Basic Radical : Ammonium

The given simple salt is <u>Ammonium Bromide</u>

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –XIII

Salt NO:

	Date:					
S.NO	EXPERIMENT	OBSERVATION	INFERENCE			
1.	a) ColourColour of the salt is noted.b)Appearance	Colourless	Absence of copper and iron salts.			
	Appearance of the salt is noted	Crystalline	May be Sulphate, nitrate or Chloride			
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate, nitrate, chloride			
3	Action of heat: A small amount of a salt is strongly heated in a test tube	No characteristic change	Ansence of ammonium, nitrate, Zinc salts .			
4.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No Characteristic coloured flame.	Absence of copper,calcium and barium.			
5.	Action of dilute hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic change	Absence of carbonate, sulphide and nitrate			
6.	Action of Conc.Sulphuric acid: Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc.Sulphuric acid and gently heat it in the Bunsen flame.	No characteristic gas is evolves	Absence of chloride bromide nitrate.			
7	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas is evolved	Absence of chloride , bromide			
8.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas evolves	Absence of nitrate			
9.	Action of dilute sodium hydroxide solution: To a small quantity of a salt add about 1ml of dilute sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammoniumsalt.			
10.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid, gently heat it	No Red Orange vapours	Absence of chloride			

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dil. Nitric acid in drops with shaking until the effervescence ceases, and then add about 1mL of Silver Nitrate, and shake it well.	No precipitate is obtained	Absence of chloride, bromide, sulphide .
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the effervescence ceases, then add 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	Sulphate is confirmed

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1mL of dil acetic acid and heat it , until the effervescence ceases, and then add 1ml of lead acetate.	A white precipitate soluble in excess of ammonium acegate is formed.	Presence of Sulphate.
13.	Brown Ring test:		
	To about 1ml o f the sodium carbonate extract add dil. Sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc.Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dil. HNO_3 until the ef- fervescence ceases, then add about $1mL$ each of ammonium molybdate and Conc. HNO_3	No Canary yellow precipitate is obtained	Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in water.

	ZERO	GROUP	
	To a few drops of the original solution a few drops of Nessler's reagent and excess of sodium hydroxide solution are added.	No reddish brown precipitate	Absence of ammonium.
	GROUF	SEPERATION	
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	No characteristic precipitate	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen sulphide gas is passed.	No Black precipitate is obtained.	Absence of second group
3	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added	No precipitate is obtained	Absence of Third group
4	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and and Hydrogen sulphide gas is passed.	No dirty white precipate is obtained.	Absence of Fourth group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solution and 2ml of saturated ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of fifth group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2ml of di sodium hydrogen phosphate solutions are added.	White precipitate is obtained.	Presence of VI group (Magnesium)
	CONFIRMATORY TES	T FOR BASIC RADICAL	
То	t for Magnesium a few drops of the Originial solution 2drops of gneson" reagent is added	Blue precipitate is obtained	Magnesium
	CONFIRMATORY TE	ST FOR ACID RADICAL	
To a acid	t with barium chloride: bout one ml of the sodium carbonate extract, add dil. acetic in drops with shaking until the effervescence ceases, then 1ml of barium chloride solution and shake it.	A white precipitate is formed insoluble in dil sulphuric acid	Sulphate is confirmed

RESULT

The given simple salt contains

1. Acid Radical : Sulphate 2.Basic Radical : Magnesium

.. The given simple salt is Magnesium Sulphate

SYSTEMATIC ANALYSIS OF A SIMPLE SALT –(XIV)

Salt NO:

	ate:	1	
S.no	Experiment	Observation	Inference
1.	a) Colour Colour of the salt is noted.	Colourless	Absence of copper and iron salts
	b)Appearance Appearance of the salt is noted	Powdery	May be Carbonate or sulphide
2.	Solubility: A little of the salt is shaken with water.	Insoluble	May be Carbonate or sulphide
2.	Action of heat: A small amount of a salt is strongly heated in a test tube	Colourless,odourless gas turning lime water milky.	May be carbonate .
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc. HCl to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic coloured flame	Absence copper, barium calcium salts.
4.	Action of dilute hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	Brisk effervescence of colourless gas turning lime water milky	Carbonate is confirmed.
5.	Action of Conc. H_2SO_4 : Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
6	Action of MnO_2 and Conc. H_2SO_4 : Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1mL of Conc. H_2SO_4 . Gently heat it.	No reddish brown gas evolves	Absence of nitrate
8.	Action of dil. NaOH solution:	No pungent smelling gas.	Absence of ammonium.
	To a small quantity of a salt add about 1ml of dil. NaOH solution and gently heat it.		
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one mL of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml ofSilver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one mL of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves- cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is formed.	Absence of Sulphate

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed.	Absence of sulphate .
13.	Brown Ring test:		
	To about 1ml o f the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dil. Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid		Absence of phosphate
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of dil .aommonia then add about few drops of sodium nitro bruside.	No purple or violet colouration appears	Absence of sulphide

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

Γ

The original solution prepared by dissolving a small amount of salt in dilute hydrochloric acid. ZERO GROUP

	ZER	O GROUP	
	a few drops of the original solution sodium hydroxide and seler's reagent are added.	No reddish brown precipitate	Absence of ammonium.
	GROUP	SEPERATION	
1.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added.	White precipitate soluble when boileed with water is obtained.	Absence of first group
2.	To a few drops of the original solution 2 ml of dilute hydrochloric acid is added and Hydrogen gas is passed.	No characteristic precipitate is obtained.	Absence of II group
3.	To a few drops of original solution 1ml of each ammonium chloride and of ammonium hydroxide solutions are added.	No characteristic precipitate is obtainted.	Absence of III group
4.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide solutions are added and Hydrogen sulphide gas is passed.	No characteristic precipate is obtained.	Absence of IV group
5.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2 ml of ammonium carbonate solutions are added.	No White precipitate is obtained.	Absence of V th group
6.	To a few drops of the original solution 1ml of ammonium chloride and 2ml of ammonium hydroxide and 2ml of di sodium hydrogen phosphate solutions are added. NFIRMATORY TEST FOR BASIC RADICAL	White precipitate is obtained.	Presence of VI group (Magnesium)
			Magnaging
То	t for Magnesium a few drops of the Originial solution 2drops of agneson" reagent is added	Blue precipitate is obtained	Magnesium
COI	NFIRMATORY TEST FOR ACID RADICAL	·	
Tak	ion of dilute Hydrochloric acid: e a small amount of salt in a test tube and add about 1ml of te hydrochloric acid to it.	Brisk effervescence of colourless gas turning lime water milky	Carbonate is confirmed.
RES	SULT given simple salt contains		

The given simple salt contains

1. Acid Radical : Carbonate 1.Basic Radical : Magnesium

.. The given simple salt is <u>Magnesium</u> Carbonate

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SYSTEMATIC ANALYSIS OF A SIMPLE SALT –XV

Salt NO: Date:

	ate:		
S. No	Experiment	Observation	Inference
1.	a) ColourColour of the salt is noted.b)Appearance	Colourless	Absence of copper and iron salts
	Appearance of the salt is noted	Crystalline	May be sulphate , nitrate, chloride, phosphate
2.	Solubility: A little of the salt is shaken with water.	Soluble	May be sulphate , nitrate, chloride, phosphate
2.	Action of heat: A small amount of a salt is strongly heated in a test tube	No Characteristic change .	Absence of ammonium, nitrate, zinc salts .
3.	Flame test: Take a small amount of salt in a watch glass. Add a drop of Conc.hydrochloric acid to it and form a paste. Take the paste at the charred end of the splinter and introduce it near the Bunsen flame.	No characteristic coloured flame	Absence copper, barium calcium salts.
4.	Action of dilute hydrochloric acid: Take a small amount of salt in a test tube and add about 1ml of dilute hydrochloric acid to it. Gently heat it in the Bunsen flame.	No characteristic gas is evolved.	Absence of carbonate, nitrate, sulphide.
5.	Action of Conc. H_2SO_4 : Take a small amount of a salt in a dry test tube, add about 0.5ml of Conc. H_2SO_4 and gently heat it in the Bunsen flame	No characteristic gas is evolves	Absence of chloride, bromide, nitrate
6	Action of MnO_2 and $Conc. H_2SO_4$: Take a small amount of salt in a test tube, add pinch of MnO_2 and about 0.5mL of Conc. H_2SO_4 and gently heat it in the Bunsen flame.	No characteristic gas evolves	Absence of chloride and bromide
7.	Action of Conc. H_2SO_4 and copper turning: Take a small quantity of salt in a dry test tube and add few copper turnings and about 1ml of Conc. Sulphuric acid. Gently heat it.	No reddish brown gas evolves	Absence of nitrate
8.	Action of dil. Sodium Hydroxide solution: To a small quantity of a salt add about 1ml of dilute sodium hydroxide solution and gently heat it.	No pungent smelling gas.	Absence of ammonium salt
9.	Chromyl chloride test: Take a small quantity of salt in a test tube, add a pinch of potassium dichromate and three drops Conc. Sulphuric acid.	No Red Orange vapours	Absence of chloride

Analysis with sodium carbonate extract

Preparation of sodium carbonate extract:

A small amount of slat is mixed with twice the amount of sodium carbonate and 20ml of distilled water is added, boiled for 10 minutes cooled and filtered. The filtrate is called sodium carbonate extract.

	EXPERIMENT	OBSERVATION	INFERENCE
10.	Test for halides: To about one ml of the sodium carbonate extract add dilute Nitric acid in drops with shaking until the effervescence ceases, and then add about 1ml ofSilver Nitrate, and shake it well.	No precipitate is obtained.	Absence of chloride, Bromide, sulphide.
11.	Test with barium chloride: To about one ml of the sodium carbonate extract, add dil. acetic acid in drops with shaking until the efferves- cence ceases, then add 1ml of barium chloride solution and shake it.	No white precipitate is formed.	Absence of Sulphate

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12.	Test with lead acetate: To about 1mL of the sodium carbonate extract, add 1ml of dil acetic acid and heat it , until the effervescence ceases, and then add 1mL of lead acetate	No white precipitate is formed.	Absence of sulphate .
13.	Brown Ring test:		
	To about 1ml of the sodium carbonate extract add dilute sulphuric acid in drops with shaking until the effervescence ceases and about 0.5mL of freshly prepared ferrous sulphate solution. Then keeping the test tube in a slanting position add Conc. Sulphuric acid along the sides of the test tube.	No brown ring is formed	Absence of nitrate.
14.	Ammonium molybdate test: To one portion of the extract, add dil. Nitric acid until the effervescence ceases, then add about 1ml each of ammonium molybdate and Conc. Nitric acid		Phosphate is confirmed
15.	Test with sodium nitro bruside: To about 1ml of the sodium carbonate extract add 1ml of		Absence of sulphide
	dil .ammonia then add about few drops of sodium nitro bruside.	appears	

IDENTIFICATION OF THE BASIC RADICALS

Preparation of Original solution :

The original solution prepared by dissolving a small amount of salt in dilute hydrochloric acid .

	ZER	O GROUP	
To a few drops of the original solution s Nessler 's reagent are added.	odium hydroxide and	No reddish brown precipitate	Absence of ammonium.
	GROUP	SEPERATION	
1. To a few drops of the original so hydrochloric acid is added.	olution 2 ml of dilute	White precipitate soluble when boileed with water is obtained.	Absence of first group
2. To a few drops of the original so hydrochloric acid is added and Hyd		No characteristic precipitate is obtained.	Absence of II group
3. To a few drops of original se ammonium chloride and of a solutions are added.		No characteristic precipitate is obtainted.	Absence of III group
 To a few drops of the origina ammonium chloride and 2ml of solutions are added and Hydrog passed. 	ammonium hydroxide	No characteristic precipate is obtained.	
5. To a few drops of the origina ammonium chloride and 2ml of and 2 ml of ammonium carbonate s	ammonium hydroxide	No White precipitate is obtained.	Absence of V th group
 To a few drops of the origina ammonium chloride and 2ml of and 2ml of di sodium hydrogen p added. 	ammonium hydroxide	White precipitate is obtained.	Presence of VI group (Magnesium)
	CONFIRMATORY TH	EST FOR BASIC RADICAL	
<u>Test for Magnesium</u> To a few drops of the Originial "Magneson" reagent is added	solution 2drops of	Blue precipitate is obtained	Magnesium
	CONFIRMATORY T	EST FOR ACID RADICAL	
Ammonium molybdate test: To one portion of the extract, add dil. N fervescence ceases, then add about 1m molybdate and Conc. Nitric acid		Canary Yellow precipitate is obtained	Phosphate is confirmed
RESULT The given simple salt contains 1. Acid Radical : Phosphate	1.Basic Radical : M	agnesium	

.. The given simple salt is : <u>Magnesium Phosphate</u>