SYSTEMATIC ANALYSIS OF A SIMPLE SALT

EXPERIMENT	OBSERVATION	INFERENCE
APPEARANCE AND SOLUBILITY: Appearance of salt is noted and a little of the salt is shaken well with water.	Crystalline and soluble	May be SO_4, NO_3, Cl or Ammonium Carbonate.
ACTION OF HEAT: A small amount of the salt is heated gently in a dry test tube.	The white salt turns yellow on heating.	May be zinc.
FLAME TEST: A small amount of the salt is made into a paste with conc. HCl in a watch glass and introduced into the	No characteristic coloured flame.	Absence of Cu, Ca and Ba.

Date :..... Ex. No. :.....

S. NO.	EXPERIMENT	OBSERVATION	INFERENCE
	non-luminous part of the Bunsen flame.		
	ASH TEST: A filter paper is soaked into a paste of the salt with conc. HCl / HNO_3 and cobalt nitrate solution in a watch glass and burnt.	Green ash	Presence of zinc
	II TEST FOR ACID RADICALS		
	ACTION OF DIL. HCl : To a small amount of dil. HCl, the salt is added.	No characteristic change	Absence of sulphide & carbonate.

COPPER TURNING TEST: A small amount of the salt is heated with Cu turnings / filter paper balls and a few drops of H_2SO_4	No reddish brown gas is evolved.	Absence of Nitrate
CHROMYL CHLORIDE TEST: To a small amount of the salt, a pinch of $K_2Cr_2O_7$ is added and heated with few drops of conc. H_2SO_4.	No red orange vapours	Absence of chloride
ACTION OF NaOH: A small amount of the salt is heated with NaOH	No pungent smelling gas	Absence of Ammonium

Date :..... Ex. No. :.....

S. NO.	EXPERIMENT	OBSERVATION	INFERENCE
	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 EXTRACT"		
	BARIUM CHLORIDE TEST: To a few drops of the extract, dilute hydrochloric acid is added until the effervescence ceases and 2ml of Barium chloride solution is added.	A white precipitate insoluble in conc. HCl	Sulphate is confirmed.
	SILVER NITRATE TEST: To a few drops of the extract, dil. HNO_3 is added until the effervescence ceases and 2ml of Silver nitrate solution is added.	No precipitate	Absence of chloride/ sulphide.

BROWN RING TEST:

To a few drops of the extract, dil. H_2SO_4 is added until the effervescence ceases, then freshly prepared $FeSO_4$ is added and then conc. H_2SO_4 is added drop by drop along the sides of the test tube.

No brown ring

Absence of nitrate

IDENTIFICATION OF THE BASIC RADICALS

PREPARATION OF ORIGINAL SOLUTION:

The original solution is prepared by dissolving the salt in water, dil. HCl, or dil. HNO_3 [when the salt is water insoluble]

ZERO GROUP

To a few drops of the original solution, NaOH and Nessler's reagent is added.

No reddish brown precipitate.

Absence of ammonia

Date :..... Ex. No. :.....

S. NO.	EXPERIMENT	OBSERVATION	INFERENCE
		GROUP IDENTIFICATION	
	To a few drops of the original solution 2ml of dil. HCl is added.	No characteristic precipitate	Absence of 1st group [Lead]
	To a few drops of the original solution 2ml of dil. HCl is added and H_2S gas is passed.	No characteristic precipitate	Absence of second group [Copper]
	To a few drops of the original solution 1ml NH_4Cl and 2ml NH_4OH solution are added.	No characteristic precipitate	Absence of third group [Aluminium]
	To a few drops of the original solution 1ml NH_4Cl and 2 ml NH_4OH solution are	Dirty white precipitate	Presence of fourth group [Zinc]

added and H_2S gas is passed

V. CONFIRMATORY TEST FOR BASIC RADICALS

FOURTH GROUP - ZINC

To a few drops of the original solution. Potassium ferrocyanide is added.	White precipitate soluble in excess of NaOH and insoluble in dil. acid	Zinc is confirmed.

RESULT :

The given simple salt contains :

1. ACID RADICAL : Sulphate
2. BASIC RADICAL : Zinc

∴ The given simple salt is Zinc Sulphate