Aim: To determine the salt in the given salt.

Apparatus: Petri dish, test tube, bunsen burner, test tube holder

Procedure

| S.NO | EXPERIMENT | OBSERVATIONS | INFERENCE |
|---|---|---|---|
| 1. | Physical Examination | | |
| | a) Color | White | $Cu^{2+}$, $Fe^{2+}$, $Fe^{3+}$, $Ab$ |
| | b) Smell | Ammonical Smell | $NH_4^+$ maybe |
| 2. | Dry heating test | | |
| | A pinch of salt is taken in dry test tube and heated | | |
| | a) Sublimation | white sublimate when glass rod dipped in dil. HCl brought near mouth of test tube turns Nessler's soln brown | $NH_4^+$ present |
| | b) Gas evolved | Colorless gas with pungent smell - greenish yellow. Starch iodide paper turns blue | $Cl^-$ present |
| | 3. Flame Test | | |
| | Prepare a paste of the salt | No flame | $Ca^{2+}$, $Ba^{2+}$, $Si^{2+}$, $Pb^{2+}$ |

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|---|---|---|---|
| | with conc. HCl and perform test | | $Zn^{2+}$, $Mn^{2+}$ absent |
| 4. | Dil. $H_2SO_4$ Test | | |
| | Take a small quantity of salt in test tube & add dil. $H_2SO_4$ | No observation | $CO_3^{2-}$, $S^{2-}$, $SO_3^{2-}$, $NO_3^-$ are absent. |
| 5. | Conc. $H_2SO_4$ test | | |
| | Take a small quantity of salt in test tube and add dil. $H_2SO_4$ | Colorless gas with pungent smell | $Cl^-$ indicated |
| 6. | Confirmatory test for $Cl^-$ | | |
| | $AgNO_3$ test | | |
| | To salt solution add $AgNO_3$ solution | A curdy white precipitate is formed which is soluble in $NH_4OH$ | $Cl^-$ ion is confirmed |
| 7. | Identification for $NH_4^+$ | Colorless gas, $NH_3$, | $NH_4^+$ maybe present. |
| | Salt is added to dilute NaOH along with water and heated | evolves which gives white, dense fumes with conc. HCl | |
| 8. | Confirmation of $NH_4^+$ | | |
| | To original salt solution add dil. NaOH along with Nessler's reagent | Brown ppt | $NH_4^+$ confirmed |

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