**Salt Analysis**

**Cation Test:**

**Ammonium:** Add drops of sodium hydroxide to salt, if precipitation doesn’t form, heat the solution with a burner and test gas evolved with red litmus paper. Evaluation of pungent gas which turns red litmus blue and form white ppt with conc. HCl confirms the presence of Ammonium ion.

**Calcium:** Add drops of sodium hydroxide then in excess to salt, if white precipitation forms it may be calcium. Then add dilute sulfuric acid to a portion of main solution, white ppt confirms the presence of calcium ion.

**Zinc**: Add drops of aqueous ammonia then in excess to salt. if precipitation doesn’t form, zinc ion is confirmed.

**Aluminium:** Add drops of aqueous ammonia then in excess to salt. if precipitation forms, add potassium iodide solution to a portion of the original solution, if no precipitation with KI, confirms the presence of Aluminium ion.

**Lead:** Add drops of aqueous ammonia then in excess to salt. if precipitation forms, add potassium iodide solution to a portion of the original solution, if yellow precipitation forms with KI, confirms the presence of lead ion.

**Copper:** Add excess aqueous ammonium solution to the salt. Formation of deep blue solution confirms the presence of Copper ion.

**Iron (II):** Add potassium ferricyanide solution to the salt solution. Dark blue precipitation confirms the presence of Iron(II)

**Iron (III):** Add potassium thiocyanate solution to the salt solution. An ox-blood solution confirms the presence of Iron(III) ion

**Anion Test**

**Sulphate:** Add barium chloride solution to your salt. White precipate of barium sulphate confirms the presence of Sulphate ion.

**Nitrate**: Add Conc. Sulfuric acid to the solution of your salt and heat the solution. Evaluation of brown NO2 gas confirms nitrate ion.

**Halide**: Add silver nitrate to your salt. White ppt of silver chloride confirms chloride ion, yellow ppt confirms bromide ion.

**Carbonate**: Add 2-3 drops of conc. HCl to your salt. Brisk effervescence (bubble) of carbon-di-oxide gas confirms the presence of carbonate ion.