

Experiment No. 9

Aim - Identification of basic radicals present in the given sample.

Theory - Qualitative analysis is the detection and identification of radicals present in an inorganic salt.

Apparatus Required :-

- 1) Test tubes
- 2) Test tube holder
- 3) Glass tube
- 4) Gas burner
- 5) Charcoal block
- 6) Platinum wire
- 7) Blow pipe

Chemicals Required

- 1) Dilute HCl
- 2) NH_4Cl
- 3) NH_4OH solution
- 4) NaOH solution
- 5) Acetic acid.

DRY Test for Basic Radical

Experiment	Observation	Inference
1) Physical appearance a) Colour b) State	white solid	May be salt of Na , Ca , K , NH_4^+ , Mg , Sr , Zn & Al .
2) Action of heat:- Salt heated in dry test tube	Yellow when hot, white when cold	May be Zn^{++}
3) Charcoal cavity test - Salt heated in Charcoal cavity then add one drop cobalt nitrate	Green	May be Zn^{++}
4) Flame Test - The end of Pt-wire touch to the salt and heated the wire in the flame	No change the colour of flame	

~~1) Physical appearance~~

WET TEST FOR BASIC RADICAL

Salt + dil HCl	
No ppt Gr I absent	Pass H ₂ S gas
No ppt Gr II absent	No ppt, boil off H ₂ S. Add 1 ml conc HNO ₃ , NH ₄ Cl and NH ₄ OH in excess, warm
No ppt Gr III A absent	Pass H ₂ S gas
	Black ppt Gr III B present

Dissolve the ppt in dil HNO₃ Boil off H₂S gas and add NaOH solution in excess

No residue
Mn⁺⁺ absent

Filtrate acidify with acetic acid and pass H₂S gas, white ppt Zn⁺⁺ present

Result - So the given sample contains one basic radical

