

Qualitative Analysis Report sheet.

Unknown #36. (10 drops)

4 drops 6M HCl

white ppt.

solt (light green)

Group A cation (Ag^+/Pb^{2+})

Group B, C, D cations

wash with DI H_2O and Heat

6M NH_3 until pH (9~10)

white ppt

clear soln.

solt. (Pb^{2+})

white ppt

$AgCl(s)$

1M KI
NO Reaction observed.

Group B cation

(clean, light purple) Group C, D

6M NH_3 (10 drops)

$Ag(NH_3)_2^+$ (aq)

6M HNO_3

$AgCl(s)$

$\therefore Ag^+$ confirmed.

5 drops 6M NaOH
4 drops 3% H_2O_2

($Fe^{3+}, Bi^{3+}, Mn^{2+}$)
(Cr^{3+}, Al^{3+})

white ppt

(clean, green) solt

Group B1

Group B2

($Bi(OH)_3, Fe(OH)_3, MnO_2$)

($Cr(OH)_4^-, Al(OH)_4^-$)

6M HCl (heat)

6M HCl (3d)
aluminum (3d)
6M NH_3

(clean soln)

Bi^{3+} (aq)

6M NaOH (3 drops)
+ $SrCl_2$

$Al(OH)_3(s)$

(Red ppt)

$\therefore Al^{3+}$ confirmed

$Bi(s)$

(Black solid)

$\therefore Bi^{3+}$ confirmed

Ammonium Oxalate (25 drops)

white ppt

solt

(clean, light blue)

Group C
($Ca^{2+}, Ba^{2+}, Sr^{2+}$)

Group D

Please turn over.

Group C and D
snt (clear, light purple)

PPT Group C
(Ca^{2+} , Ba^{2+} , Sr^{2+})

snt Group D: (clear, light blue)
(Cu^{2+} , Ni^{2+} , Mg^{2+} , Zn^{2+})

wash with D-I water.

- heat in crucible until dryness; add 6M HNO_3 (6 drops)
- Repeat 1 more time
- ADD 7 drops 6M HCl

Flame test: (Ca_2O_4 (s))

Brick: (Ca^{2+})
 $\therefore \text{Ca}^{2+}$ confirmed.

1 drop of soln (colorless, soln)

- 3 drops 6M NH_3
- 1 drop 1% dimethylglyoxime

Cherry Red ppt formed.
 $\text{Ni}[\text{C}(\text{CH}_3)_2\text{C}_2(\text{NOH})(\text{NO})]_2$ (s)
 $\therefore \text{Ni}^{2+}$ confirmed.

Remaining soln

- 5 drops 6M NH_3
- 4 drops 6M CH_3COOH
- $\text{Na}_2\text{S}_2\text{O}_3$ 0.201 g
- + ΔH

ppt CuS, NiS
(Black ppt)

snt (ZnS, Mg^{2+})
(clear soln)

- 1 drop 6M NH_3
- 7 drops Na_2HPO_4
- - ΔH

white ppt

($\text{Zn}_3(\text{PO}_4)_2$, MgNH_4PO_4)

discard. (Ni^{2+})

- 6M NaOH .
- all ppt dissolved

$[\text{Zn}(\text{OH})_4]^{2-}$ (aq)

- 6M CH_3COOH (yellow soln.)
- 4 drops
- 0.1M $\text{K}_4[\text{Fe}(\text{CN})_6]$

$\text{Zn}_2[\text{Fe}(\text{CN})_6]_3$ (s)

$\therefore \text{Zn}^{2+}$ confirmed