

# Test of Special Combination of Anionic Constituents

(A) Sulphide, Sulphite, Sulphate & Thio sulphate

a) Sodium carbonate extract + freshly prepared nitroprusside sol<sup>n</sup> → Purple colour (Sulphide is present)

b) 2) sulphide is present, remove it then by adding cadmium acetate / lead carbonate  
→ Sodium carbonate extract  
Shake it & filter it

Black ppt / Yellow ppt  
(PbS) / (CdS)

Filter

Add excess of Potrate or BaCl<sub>2</sub> sol<sup>n</sup> & filter

White ppt.  
(BaSO<sub>3</sub>, BaCO<sub>3</sub>, BaSO<sub>4</sub>)  
Add excess of dil HCl & then filter

Add AgNO<sub>3</sub> sol<sup>n</sup>, white ppt changing to yellow, orange, brown & finally black, thio sulphate confirmed

Potrate

Add Br<sub>2</sub> water till colour persists, boil.  
white ppt. confirms sulphite



White ppt (BaSO<sub>4</sub>)

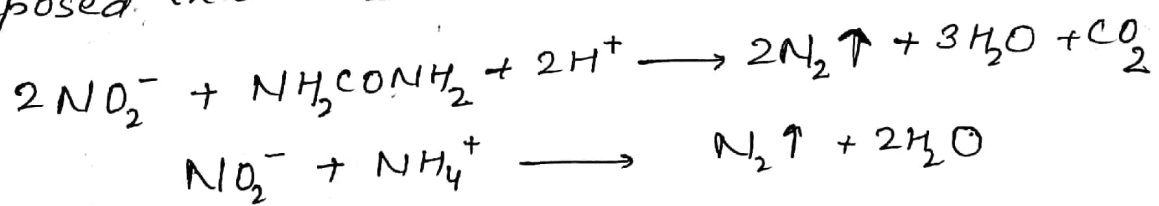
Insoluble in con HCl & conc HNO<sub>3</sub>. sulphate confirmed

$$\begin{aligned}
 & -S(P_{11}-P_{22})\sin\theta_{12} - S(P_{13}+P_{31})\sin\frac{\theta_{23}}{2} + S(P_{12}+P_{21})\left(\cos\theta_{12} + \left(\cos\frac{\theta_{23}}{2}-1\right)\right) \\
 & -S(P_{22}-P_{33})\sin\theta_{23} - S(P_{13}+P_{31})\sin\frac{\theta_{23}}{2} + S(P_{23}+P_{32})\left(\cos\theta_{23} + \left(\cos\theta_{12}-1\right)\right)
 \end{aligned}$$

(b) Nitrate in presence of nitrite.

Nitrite interferes in the detection of nitrate. Hence nitrite must be removed completely before testing for nitrate.

⇒ Acidify about 2cc of  $\text{Na}_2\text{CO}_3$  extract with dil  $\text{H}_2\text{SO}_4$  & then heat with excess of solid urea or  $\text{NH}_4\text{Cl}$ . Nitrite will be decomposed into  $\text{N}_2$ .



Now perform ring test for testing nitrate.