Cl⁻ ions : DPD method (colourimetric)

demand-free

Reagents: i) Cl_2 soln
ii) Acetic acid
iii) KI
iv) $Na_2S_2O_3$ titrant
v) Starch indicator
vi) Phosphate buffer soln
vii) DPD indicator
viii) $KMnO_4$

Interference: Chromate (Removal by thioacetamide)

22nd Oct 2023.

Sulphate: indirect colorimetric detection of sulphate.

Chloranilate Test

SO_4^{2-} (anion) $+ BaC_6Cl_2O_4 (\downarrow) + H^+ \longrightarrow BaSO_4 (\downarrow) + HC_6Cl_2O_4^+$

(Barium chloranilate)?

(Both cation & anion interference)

- cation → insoluble ppt → cause high incorrect sulphate value (can be removed by cation exchange method)?
- anion → Kaolin clay (page 543) → adsorption of SO_4^{2-} → desorption

→ Methylthymol Blue → other option.

Turbidimetric method:

- SO_4^{2-} is precipitated in an acetic acid medium with Barium chloride ($BaCl_2$) so as to form Barium SO_4 crystals of uniform size. Light absorbance of the $BaSO_4$ suspension is measured by a photometer & the SO_4^{2-} conc. is determined by comparison of the reading with a standard curve.