

OVERVIEW OF TITRATION FOR CALCULATING ClO₂ AND Cl₂ CONCENTRATIONS IN ClO₂



Unpaired electron

CHEMICALS

- 0.1N Sodium thiosulfate
- 1N Potassium Iodide
- 4N H₂SO₄

PROCEDURE:

All MSDS sheets must be reviewed and followed!

Using a 250 ml flask, add 10 ml of ClO₂ solution to 50 ml of distilled water and 20 ml of 1N KI solution. Titrate with 0.1N sodium thiosulfate solution until clear. Record mls of sodium thiosulfate (End point A). Do not refill buret. Add 20 mls of 4N H₂SO₄ to flask and continue titrating until solution is again clear. Record mls of sodium thiosulfate (End point B). Calculate concentrations as follows:

$$\text{ClO}_2 \text{ Conc., g/l} = \frac{(B - A) \times 0.1\text{N Thio} \times 67.5 \text{ FW of ClO}_2}{(10 \text{ ml sample titrated}) \times (4 \text{ mole of I}^- \text{ per mole ClO}_2^-)}$$

$$= 0.169 \times (B - A)$$

$$\text{Cl}_2, \text{ g/l} = \frac{[B - 1.25 \times (B - A)] \times 0.1 \text{ N thio} \times 35.5 \text{ FW of ClO}_2}{10 \text{ ml sample}}$$

EQUATIONS

