

1/21/15

endpoint - the visual indication that a titration is complete

equivalence point - equal moles of the reagents have reacted (adjusted for stoichiometry).

$$n_{\text{oxidizer}} = s \cdot n_{\text{reducer}}$$

↑
stoichiometry

If $s=1 \rightarrow M_o V_o = M_r V_r$

Because the size of a drop cannot be exactly controlled, it is likely that during a titration the equivalence point will be very slightly exceeded by the time the endpoint is reached (last drop might have been larger than need)

Primary standard - the reference compound used to establish any subsequent concentrations during a titration (normally not directly used in analysis)

Secondary standard - a compound that has been calibrated against the primary standard that is usually used in analysis

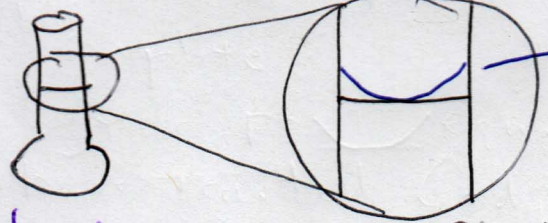
1° standard: $KIO_3 \rightarrow$ same compound to be analyzed
- not hygroscopic \rightarrow accurate (and precise) mass

2° standard: $Na_2S_2O_3$

- must be standardized because it is deliquescent

forms a solution upon standing due to it being extremely hygroscopic

KIO_3 - 0.157g KIO_3 (s) in 100mL total volume



meniscus
• To prepare a sol'n of fixed molarity, start with the solid in the flask then carefully fill up to the appropriate volume with the solvent,

volumetric flask

$Na_2S_2O_3$ - 0.5g Na_2SO_3 (s) + 0.005g Na_2CO_3 in 100mL H_2O
(5mg)

Standardization (7x)

- 1.00 mL of KIO_3 + 5 mL H_2O + 6 drops 2M H_2SO_4
- add 2mL of 10% KI (aq)
- ↳ turns red/brown/yellow (I_2)
- titrate with thiosulfate until sol'n is colorless