

Exp 3 Neutralization titration

- 1) Standardization of an acid and base.
- 2) Determine of the concentration of commercial phosphoric Acid H_3PO_4 using NaOH using different indicators

* In Any titration we have:-

1) Analyte

2) Titrant

↳ in this exp:-

3) Indicator

1) The analyte is H_3PO_4

4) Equivalent point $n_{acid} = n_{base}$ 2) Titrant is NaOH (Secondary standard)

5) end point

3) indicator (chosen according to pH rxn)

4) we have 3 equivalent point due to we have 3 protons (H_3PO_4)

↳ The indicators used in Neutralization titration depends on pH of the rxn

indicators	pH range	color change (Acid $\rightarrow$ Base)
Methyl orange	3 - 5	yellow to red
pheno cresol green	3.8 - 5.4	yellow to blue
phenolphthalein	8.2 - 10	colorless to pink

↳ Neutralization titration involves acid base titration in which end point detected by abrupt change in pH @ eq. point

Na_2CO_3 Standardization	HCl Standardization	NaOH titration	H_3PO_4
primary standard	* Secondary standard	* it absorbs water (hygroscopic)	* Analyte ($M = ??$)
* high stability		* we can't prepare	
* high solubility		any accurate conc	
* high m.w		Sol. by weighing	
* not hygroscopic			

* Primary standard is more stable than secondary standard.

↳ we use standardisation (as titration) to know the main conc of I-I-rank!!!

↳ to prepare primary standard: $M = \frac{mass}{m.w}$

↳ exact vol. of distilled water

$$M = \frac{mass}{m.w}$$

* pH of AgNO₃ ⇒ pH₁ = 4.6

(bromine) pH₂ = 9.7

pH₃ = 12.6

(pH₄) value of acid