

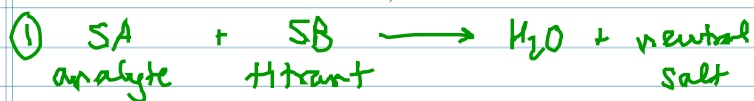
TITRATIONS

analyte = in the dish

titrant = in the burette

Equivalence point → products only!

end point → pH range for color change

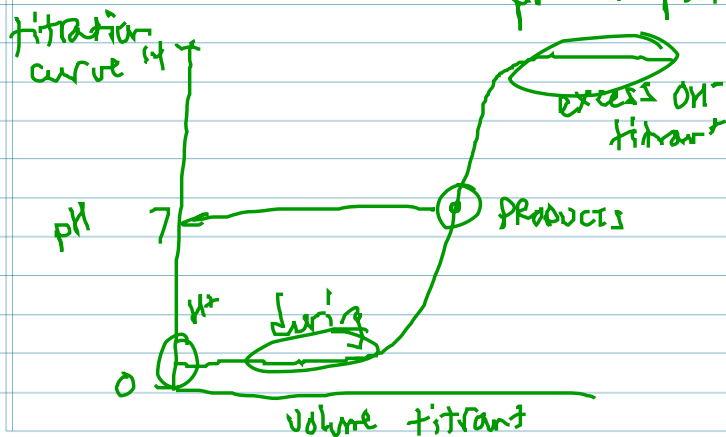


before: "in the dish" H^+ $\text{pH} = ?$
 $\text{pH} = -\log[\text{H}^+]$

during: H^+ $\text{pH} = -\log[\text{H}^+]$
 (H_2O , salt)

EQ point: H_2O , salt $\text{pH} = 7$

past EQ point: OH^- $\text{pOH} = -\log[\text{OH}^-]$
 $\text{pH} = 14 - \text{pOH}$



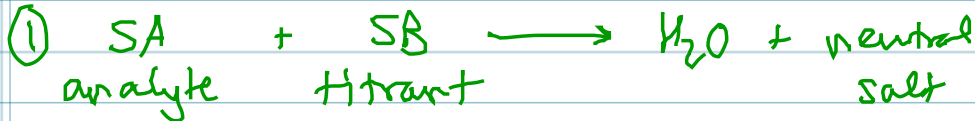
TITRATIONS

analyte = in the dish

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Equivalence point \rightarrow products only!

end point \rightarrow pH range for color change



before: "in the dish" pH = ?
 H^+ $\text{pH} = -\log[\text{H}^+]$

during: H^+ $\text{pH} = -\log[\text{H}^+]$
 (H_2O , salt)

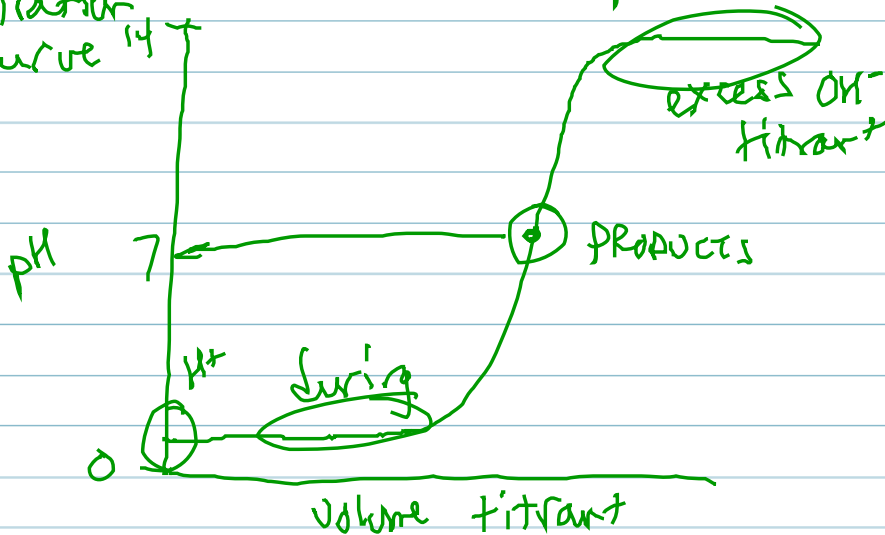
EQ point: H_2O , salt $\text{pH} = 7$

past EQ point: OH^-

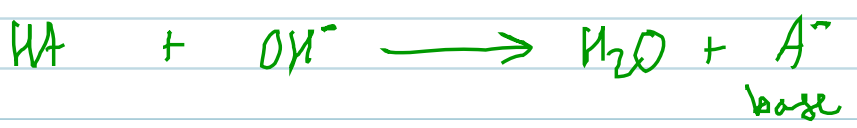
$$\text{pOH} = -\log[\text{OH}^-]$$

$$\text{pH} = 14 - \text{pOH}$$

titration curve



WA + SB
 analyte titrant



before: in the dish pH

HA K_a

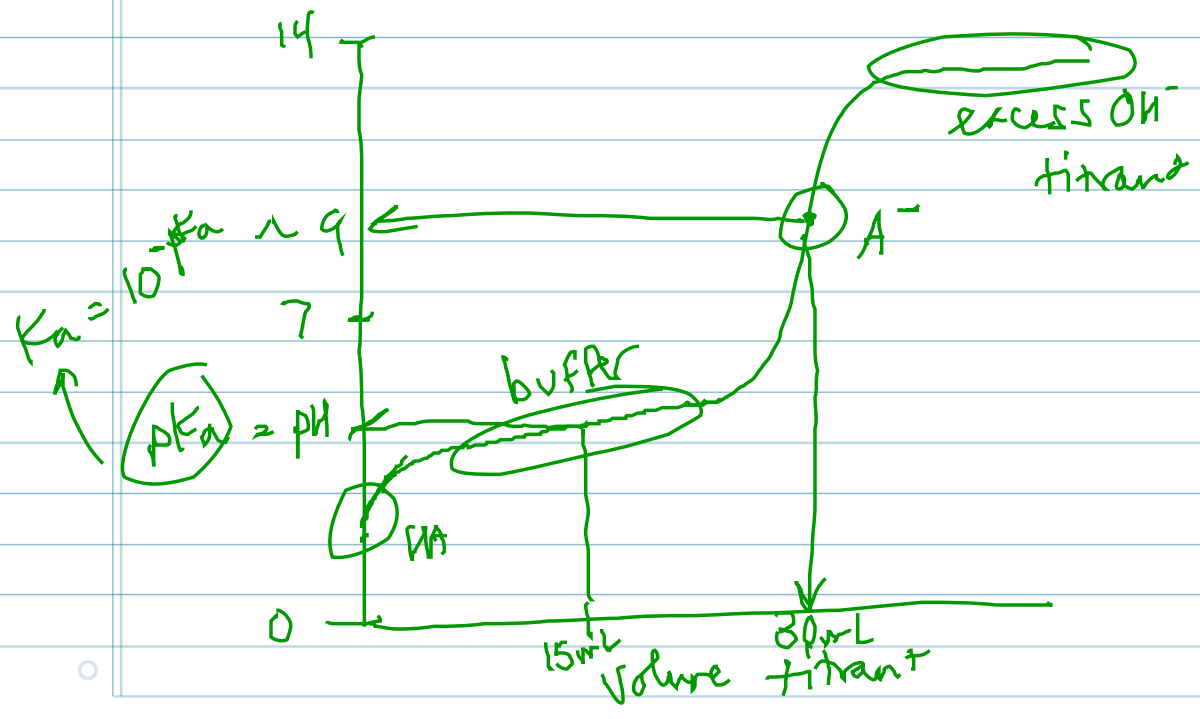
during: HA, A⁻ pH = pK_a + log $\frac{[A^-]}{[HA]}$

buffer

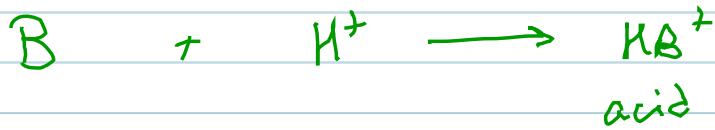
(EQ point: A⁻ K_b

after EQ point: ~~HA~~, OH⁻ pOH = -log [OH⁻]

point pH = 14 - pOH



weak base
analyte + SA
titrant



before: in the tit pH=?
B K_b

during: B, KB^+ $pH = pK_a + \log \frac{[B]}{[KB^+]}$
buffer

EQ point: KB^+ K_a

past EQ point: ~~KB^+~~ , H^+ $pH = -\log[H^+]$

