Pollution lab 7

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Water alkalinity

Background Information

The alkalinity of water represents its ability to accept protons that come from:

- 1. Bases such as sodium hydroxide or potassium hydroxide and other hydroxide - compounds),
- 2. Dissolved carbonates,
- 3. Bicarbonates.
- The total alkalinity in water range between (20-200) mg/L

Background Information

- Alkalinity found in water sample as following forms:
- 1. $CO_3^{=}$
- 2. HCO_3^{-}
- 3. OH^{-}
- 4. $OH^{-} + CO_3^{=}$
- 5. $HCO_3^{-} + CO_3^{=}$

Background Information

- Alkalinity measurement is very important to treat waste & normal water and assign the irrigation water suitability; also it's considered as a control balance on sewage water treatment processes

Procedure:

- 1. Take 100 ml from water sample either supplement or irrigated water by cylinder and put it in a flask.
- 2. Add 3 drops from **phenolphthalein** as indicator solution.(1)
- 3. Add drops from **orange methyl** as indicator solution (2).
- 4. Titrate with (0.01 N) **Hydrochloric acid** (HCL) until solution color change from **yellow to peal orange.**
- 5. Record the volume of (HCL) and calculate water alkalinity by following equation:

$$\textbf{Alkalinity} = \frac{(ml\ HCL\ titrant) * (Normality\ HCL) * 1000}{(ml\ water\ sample)}$$