



Centurion
UNIVERSITY
*Shaping Lives...
Empowering Communities...*

ESTIMATION OF SODIUM BENZOATE

BY, LIPSA SAMAL

ASST. PROF (PA & QA), SPLS, CUTM



Centurion
UNIVERSITY

Shaping Lives...

Empowering Communities.

Sodium benzoate is assayed by the help of perchloric acid,

METHOD

- **Perchloric Acid, 0.1 N (10.046 g HClO₄ per 1000 ml) Mix 8.5 ml of perchloric acid (70%) with 500 ml of glacial acetic acid and 30 ml of acetic anhydride.**
- **Cool, and add glacial acetic acid to make 1000 ml. Allow the prepared solution to stand for 1 day for the excess acetic anhydride to be combined, and determine the water content by the Karl Fischer Titrimetric Method.**



Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

- If the water content exceeds 0.05%, add more acetic anhydride, but if the solution contains no titratable water, add sufficient water to make the content between 0.02% and 0.05% of water.**
- Allow to stand for 1 day, and again determine the water content by titration. Standardize the solution as follows:**
 - Weigh accurately about 700 mg of primary standard potassium biphthalate, $\text{KHC}_6\text{H}_4(\text{COO})_2$, previously dried at 105° for 2 h, and dissolve it in 50 ml of glacial acetic acid in a 250-ml flask.**



Centurion
UNIVERSITY
Shaping Lives...
Empowering Communities...

- Add 2 drops of crystal violet TS, and titrate with the perchloric acid solution until the violet color changes to emerald green.**
- Deduct the volume of the perchloric acid consumed by 50 ml of the glacial acetic acid, and calculate the normality**
 - Each 20.42 mg of $\text{KHC}_6\text{H}_4(\text{COO})_2$ is equivalent to 1 ml of 0.1 N perchloric acid.**



Centurion

UNIVERSITY

Shaping Lives...

Empowering Communities...

CALCULATIONS :

$$\% \text{ Sodium Benzoate } = \frac{\text{X ml} \times \text{Normality (Calculated)} \times 0.01441 \times 100}{\text{N(Given)} \times \text{Wt. of sample(in gm)}}$$

$$\text{N(Given)} \times \text{Wt. of sample(in gm)}$$

- **Where, X ml = Volume of titrant consumed at end point**

Normality Calculated = Normality of Perchloric acid after standardisation

Normality Given = 0.1 N (theoretically)



Centurion
UNIVERSITY

Shaping Lives...
Empowering Communities...

THANK YOU