

Aim :-~~Ram Kumar~~  
~~15/02/22~~

To perform the chemical assay of Sodium Bicarbonate.

Reference :-Requirements:

- (a) Glasswares :- Conical flask, beaker, burette, measuring cylinder, funnel, glass rod, dropper etc.
- (b) Reagents :- Sodium carbonate (1.5g), 0.5N sulphuric acid and methyl orange indicator.

Reagent Preparation:

0.5N  $H_2SO_4$ : Dissolve 14 ml of  $H_2SO_4$  in 400 ml of water in a conical flask and make up the volume upto 1000 ml.

Principle:

Its assay is based on acid-base titration.

Sodium bicarbonate is very easily estimated by titrating with 0.5N sulphuric acid or hydrochloric acid using methyl orange as an

Teacher's Signature \_\_\_\_\_

### Observation

S.No.	Initial reading	final reading	Volume Consumed
1	0	3.6	3.6 ml
2	3.6	7.2	3.6 ml
3	7.2	10.5	3.3 ml

$$\text{Average} = \frac{3.6 + 3.6 + 3.3}{3} = 3.5 \text{ ml.}$$

### Calculation:

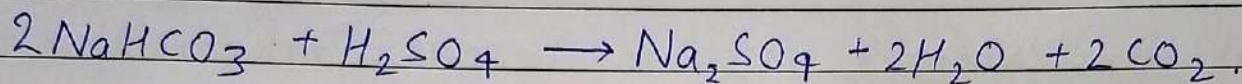
$$\% \text{ purity w/w} = \frac{\text{ml of acid required} \times \text{Normality of acid} \times 0.042 \times 100}{\text{Weight of Sample} \times 0.5}$$

$$= \frac{3.5 \times 0.5 \times 0.042 \times 100}{0.3 \times 0.5}$$

$$\% \text{ Purity w/w} = 49\%$$



indicator. ....



### Procedure:-

1. Weigh 1.5 gm of substance and dissolve in 50 ml of water in 250 ml conical flask.
2. Titrate the content of flask with 0.5N of  $\text{H}_2\text{SO}_4$  using methyl orange as an indicator until orange red colour appears.

Each 1 ml of 0.5N  $\text{H}_2\text{SO}_4 \equiv 0.042\text{g}$  of  $\text{NaHCO}_3$ .

### Result:-

The % purity of sodium bicarbonate by chemical assay was found to be 49 %.